



The *Stipo-Poion* puzzle: syntaxonomic revision of the dry and semi-dry grasslands of the Eastern Alps

Das *Stipo-Poion*-Rätsel: syntaxonomische Revision der Trocken- und Halbtrockenrasen der Ostalpen

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Abstract

We present a revised classification of the dry and semi-dry grasslands of the Eastern Alps, based on a data set of 2924 relevés. We used TWINSpan to analyse the floristic patterns and translated the result into a syntaxonomic system. At the highest level, xeric grasslands (i.e., rocky steppes and grass steppes) were separated from meso-xeric (i.e., semi-dry) grasslands. Within the first group, a strong biogeographical gradient was revealed, separating the dry grasslands of Tyrol and adjacent regions from those further east. Most of the xeric grasslands are rocky steppes while grass steppes are very rare in the Eastern Alps and were only separated at a low hierarchical level within the two geographical subgroups. Our findings suggest that the diagnostic species of the orders *Festucetalia valesiaca* and *Stipo-Festucetalia pallentis* as determined in previous studies for east-Central and Eastern Europe are not directly applicable to the inner Alps. Thus, for the time being, we refrain from separating rocky steppes and grass steppes at the order level and unite them in a single order *Festucetalia valesiaca* (s.l.) with three alliances: *Stipo-Poion xerophilae* (steppic grasslands of Tyrol and adjacent regions; incl. *Diplachnion serotinae*), *Seslerio-Festucion pallentis* (rocky steppes of Eastern Carinthia, Styria and Lower Austria) and *Festucion valesiaca* (grass steppes of Lower Austria). The semi-dry grasslands are included in the order *Brachypodietalia pinnati* with two alliances: *Mesobromion* (northern margin of the Alps between Vorarlberg and Salzburg) and *Cirsio-Brachypodion* (inner and easternmost Alps). In terms of associations, we distinguish 12 in the *Stipo-Poion xerophilae*, 7 in the *Seslerio-Festucion pallentis*, 3 in the *Festucion valesiaca*, 5 in the *Cirsio-Brachypodion* and 3 in the *Mesobromion*. Finally, we discuss the assignment of these syntaxa to EU habitat types.

Keywords: Austria, Braun-Blanquet, dry grasslands, Eastern Alps, *Festuco-Brometea*, Italy, phytosociology, *Stipo-Poion*, syntaxonomy

Erweiterte deutsche Zusammenfassung am Ende des Artikels

1. Introduction

The dry and semi-dry grasslands of Europe are hotspots of biodiversity (Wilson et al. 2012, Dengler et al. 2020). In the Eastern Alps, dry steppic grasslands are mainly found along the eastern margin adjacent to the Pannonian lowlands (Wagner 1941, Niklfeld 1964, Willner et al. 2013) and in the inner alpine valleys, which exhibit an arid, continental climate (Braun-Blanquet 1936, 1961, Magnes et al. 2021, Bergauer et al. 2022). Molecular studies of European steppe species (Kirschner et al. 2020) showed that the populations of the inner Alps are genetically distinct from the Pannonian ones, suggesting a long-term isolation of the former. Therefore, inventory and appropriate management of the inner alpine dry grasslands should be a priority goal for nature conservation.

In his seminal work on the vegetation of the dry inner valleys of the Alps, Braun-Blanquet (1961) distinguished four alliances of dry grasslands: *Stipo-Poion carniolicae* in the inner Western Alps, *Stipo-Poion xerophilae* in the inner Eastern Alps, *Xero-Bromion* in the catchment area of the Rhine river and *Diplachnion* near to the southern margin of the Alps. Thus, the alliances were purely defined on a geographical basis, while comprising ecologically different grassland types ranging from rocky steppes on shallow soils to semi-dry grasslands on deep soils. This approach can be seen as an extension of Braun-Blanquet's order concept, which was also a geographical one, with *Brometalia erecti* in the west and *Festucetalia valesiaca* in the east (Braun-Blanquet & Tüxen 1943, Royer 1991). The alliances of the inner Alps (*Stipo-Poion carniolicae*, *Stipo-Poion xerophilae* and *Diplachnion*) were included in the latter order, as they are characterised by the occurrence of species with a more eastern (i.e., steppic) distribution (e.g., *Astragalus onobrychis*, *Carex supina*, *Festuca rupicola*, *F. valesiaca*, *Scorzonera austriaca*, *Stipa capillata*, *Thesium linophyllum* etc.).

Partly building on earlier works (Braun-Blanquet 1936, 1949, Kielhauser 1954), Braun-Blanquet (1961) distinguished a huge number of associations within the three alliances. Basically, each valley system had its own set of regional associations, which mostly reflected different site conditions within each region. In the Eastern Alps, these were (from west to east, in the original form of the names): *Astragalo-Brometum*, *Koelerieto-Poetum xerophilae*, *Artemisieto-Agrophyretum* (Lower Engadin and Upper Tyrolian Inn valley); *Teucrietum-Caricetum humilis* (Inn valley between Landeck and Innsbruck); *Diplachno-Festucetum valesiaca**, *Brachypodieto-Centaureetum bracteatae*, *Tuniceto-Artemisietum campestris* (Valtellina); *Festuceto-Poetum xerophilae*, *Festuceto-Caricetum supinae*, *Stipeto-Seselietum variae* (Vinschgau/Val Venosta); *Fumano-Andropogonetum contortii**, *Ischaemo-Diplachnetum**, *Tuniceto-Koelerietum gracilis* (middle Etsch/Adige and Eisack/Isarco valley); *Potentilieto-Festucetum sulcatae*, *Seselietum austriaca*, *Phleeto-Pulsatilletum nigricantis*, *Armerieto-Potentilletum arenariae* (Carinthia and Upper Styria). The asterisk indicates the three associations classified by Braun-Blanquet (1961) in the *Diplachnion*, while all other association were included in the *Stipo-Poion xerophilae*. It is noteworthy that Braun-Blanquet obviously introduced the *Diplachnion* at the last moment because it is neither indicated in his map nor in the phytosociological tables.

The steppic grasslands of the Vinschgau have been studied by various authors since Braun-Blanquet (Strimmer 1974, Florineth 1974, Köllemann 1981, Schwabe & Kratochwil 2004, Lübben & Erschbamer 2021). However, while the first three studies did not use Braun-Blanquet's system at all, Lübben & Erschbamer (2021) encountered some problems in reproducing his classification. In particular, they questioned the validity of the alliance *Stipo-Poion xerophilae* and suggested to include the Vinschgau steppes in the *Festucion valesiaca*, a solution originally proposed by Braun-Blanquet (1936) himself.

Braun-Blanquet (1976) published two additional associations from the Engadin (*Agrosti-Dianthetum deltoidis* and *Centaureo-Gentianetum cruciatae*), of which he included only the second one in the *Stipo-Poion xerophilae* while the first one was placed in the *Mesobromion*. Franz (1987, 1989) described three new associations for Carinthia and East Tyrol (*Festuco stenanthae-Stipetum eriocaulis*, *Sileno hayekianae-Seslerietum albicantis* and *Koelerio pyramidatae-Teucrietum montani*, the latter two validated in Mucina & Kolbek 1993), and Mucina & Kolbek (1993) raised Braun-Blanquet's *Astragalo-Brometum stipetosum* to the rank of association (under the name *Achnathero-Stipetum*). In terms of alliances, Mucina & Kolbek (1993) transferred the associations of East Tyrol, Carinthia and Styria to other alliances (*Festucion valesiaca*, *Diantho-Seslerion*, *Avenulo adsurgentis-Festucion pallentis*), of which the latter two were placed in the order *Stipo-Festucetalia pallentis*, while those in North Tyrol remained in the *Stipo-Poion xerophilae* and in the order *Festucetalia valesiaca*. Hölzel (1996) distinguished two informal types of dry grasslands in the Tyrolian Inn valley and, pointing to the large number of submediterranean species, questioned the assignment to the *Festucetalia valesiaca*. Magnes et al. (2021) studied dry and semi-dry grasslands in various regions of Austria and found that a considerable number of plots could not be unambiguously accommodated in any of the associations described so far.

In recent decades, a different order concept was adopted within the class *Festuco-Brometea*, building on increasing evidence that rocky grasslands, grass steppes and semi-dry grasslands (including meadow steppes) from different regions of Europe are more similar to each other than these grassland types within each region (Mucina et al. 2016, Willner et al. 2017, 2019, Dengler et al. 2019, Dengler & Willner 2023). However, the dry and semi-dry grasslands of the inner Eastern Alps remained in the same alliances as described by Braun-Blanquet (1961), or were moved to other alliances and orders without explanation (e.g., Mucina & Kolbek 1993). In a preliminary attempt to reconcile their classification with the current order concept, Magnes et al. (2021) classified the inner alpine grasslands of Austria into the orders *Stipo-Festucetalia pallentis*, *Festucetalia valesiaca* and *Brachypodietalia pinnati*. However, a critical revision of Braun-Blanquet's *Stipo-Poion xerophilae* in its entire range using numerical methods has not been performed so far. Thus, the delimitation and order assignment of the *Stipo-Poion* is still unclear.

In addition to this unsatisfying scientific situation, the lack of a consistent syntaxonomy of the inner alpine grasslands has also undesirable consequences for conservation. In particular, their assignment to EU habitat types (DG Environment 2013) remains unclear and is handled inconsistently among member states. Originally, all *Festuco-Brometea* communities were included in habitat type 6210 ["Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)"]. With Austria joining the European Union, two additional habitat types 6240 ["Sub-pannonic steppic grasslands"] and 6250 ["Pannonic loess steppic grasslands"] were included in Annex I of the Habitat Directive, both corresponding to associations of the *Festucion valesiaca*. In the course of the east-enlargement of the European Union, another habitat type 6190 ["Rupicolous pannonic grasslands (*Stipo-Festucetalia pallentis*)"] was added, corresponding to the order of rocky grasslands. Whether any of these new types is applicable to the inner alpine dry grasslands, is still a matter of debate. In Italy, the dry grasslands of South Tyrol are included in habitat type 6240, while type 6190 is not recognised (Lasen & Wilhalm 2004). In Austria, inner alpine dry grasslands are mostly included in habitat type 6210, although official maps show some scattered occurrences of types 6190 and 6240 in Carinthia and Styria (<https://biodiversity.europa.eu/habitats/6190>, <https://biodiversity.europa.eu/habitats/6240>).

In this paper, we present a revised syntaxonomic classification of the dry and semi-dry grasslands of the Eastern Alps, focusing on the association and alliance levels. Furthermore, we propose a cross-walk between syntaxa and EU habitat types. To clarify the delimitation between orders and alliances, we also include the humid northern limestone Alps and the eastern margin of the Alps. However, we exclude the southern margin of the Eastern Alps, which has strong floristic relations to the Balkan Peninsula (Terzi 2015).

2. Study area

The Eastern Alps are the eastern half of the European Alps, defined as the area east of the line Rhine valley – Splügen Pass – Lake Como (Grassler 1984). In comparison to the Western Alps, they are lower (Piz Bernina near their western border being the only peak exceeding 4000 m a.s.l.) and wider (> 200 km in north-south direction at the longitude of Innsbruck). In the west-east direction, they span ca. 500 km. Geologically, the Eastern Alps show a characteristic tripartition along the north-south transect: Northern Limestone Alps, Central Eastern Alps, and Southern Limestone Alps (usually called Northern, Central and Southern Alps in the Austrian literature). As the names suggest, the Northern and Southern Limestone Alps are predominantly calcareous, while the Central Alps are predominantly siliceous. However, calcareous rocks (often highly metamorphic) can also be found in the Central Alps (Fink 1993).

The climatic conditions, though causally unrelated to the geology, resemble this tripartition: The outer ranges have a humid climate with 1000–1800 mm annual precipitation in the valleys (2000–3000 mm in the alpine belt), while the deep inner alpine valleys exhibit a dry and continental climate with very cold winters and only 600–800 mm annual precipitation (<https://www.zamg.ac.at/cms/de/klima>, <https://wetter.provinz.bz.it/klimadiagramme.asp>). The most continental area of the Eastern Alps is the Vinschgau in South Tyrol, with only 580 mm annual precipitation in Schlanders (at 700 m a.s.l.). Similar precipitation values, but milder winters, are found at the eastern margin of the Alps, bordering the Pannonian lowland.

These climatic gradients are also reflected in the potential natural vegetation. In the outer ranges of the Alps, beech forests are the dominant natural vegetation, while the inner alpine valleys are characterised by spruce, larch and pine forests. At the eastern margin of the Alps, oak and oak-hornbeam forests cover large areas (Niklfeld 1993). However, phylogeographic studies of steppic plants strongly suggest that open grasslands persisted both in the inner alpine valleys and along the eastern margin of the Alps since the early Holocene, although their exact extent before the onset of human land use remains unclear (Kirschner et al. 2020, Willner et al. 2021).

3. Material and methods

3.1 Data set

We compiled all available (published and unpublished) phytosociological relevés of dry and semi-dry grasslands from the study area, including 316 relevés by Braun-Blanquet. To fill regional gaps in data coverage, we did additional 74 relevés in 2022, using Holzner et al. (1986) and Dobner (2007) to identify potential localities.

We excluded relevés with a plot size $< 9 \text{ m}^2$ or $> 100 \text{ m}^2$, except in a few cases where no other relevés were available from a region. Relevés without plot size information (335 = 11%) were retained. In total, our data set comprises 2924 relevés, of which 2316 are from Austria, 475 from Italy (mainly South Tyrol), 115 from Switzerland and 18 from Germany (Fig. 1). Species taxonomy and nomenclature of vascular plants was unified, following Fischer et al. (2008). Occurrences in different layers were merged, using the formula of Fischer (2015). Taxa only identified on the genus level were excluded. Bryophytes and lichens were also excluded, as they were only recorded in a subset of the relevés. All data are stored in and available from the Austrian Vegetation Database (EU-AT-001; Willner et al. 2012).

Some species were merged into aggregates prior to the analysis because of inconsistent taxonomic resolution in the data. Unfortunately, this also includes diagnostically important grass species such as *Brachypodium pinnatum* and *B. rupestre* (merged into *Brachypodium pinnatum* agg.), *Koeleria macrantha* and *K. pyramidata* (*K. pyramidata* agg.) and *Stipa eriocaulis* and *S. pennata* (*S. pennata* agg.). A particular problem is the taxon usually called *Poa molineri* (= *Poa alpina* var./subsp. *xerophila* sensu Braun-Blanquet) because contrary to the literature we only found plants in the inner alpine dry grasslands which belong to *Poa badensis* according to the determination keys in Fischer et al. (2008), Eggenberg et al. (2018) and Pignatti et al. (2017–2019). We therefore merged *Poa badensis* and *P. molineri* into *P. badensis* agg. for our analysis. Moreover, we retained the taxon “*Festuca duriuscula* sensu Braun-Blanquet”, which probably refers to the octo- and decaploid *Festuca baudanina* and *F. guinochetii* (Arndt 2008).

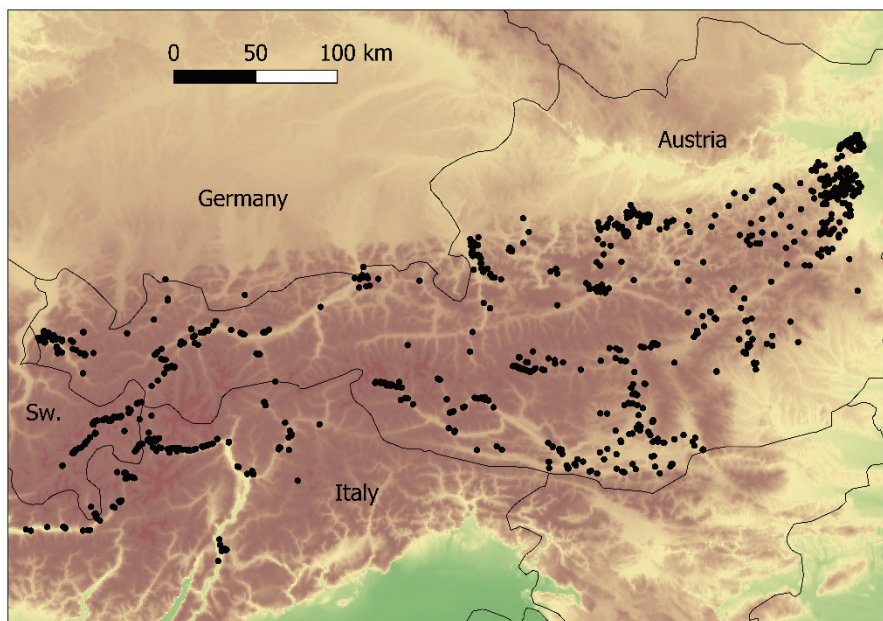


Fig. 1. Study area and relevé locations (Sw. = Switzerland).

Abb. 1. Untersuchungsgebiet und Lage der Aufnahmen (Sw. = Schweiz).

3.2 Data analysis and table work

In a first step, we conducted a TWINSpan classification (Hill 1979) using three pseudospecies cutlevels (0%, 5%, 25%), six levels of division and a minimum groups size for division of two. After a provisional syntaxonomic interpretation of the TWINSpan clusters, relevés misclassified at the order and alliance level were manually rearranged following the hierarchical approach of Willner (2011) and using the total cover of the diagnostic species in each relevé as assignment criterion. However, for the reasons explained below we were not able to apply the diagnostic species given in the literature for the order *Festucetalia valesiaca* (e.g., Mucina & Kolbek 1993, Willner et al. 2017), so we separated only between *Festucetalia valesiaca*/*Stipo-Festucetalia pallentis* (xeric grasslands) on the one hand and *Brachypodietalia pinnati* (meso-xeric grasslands) on the other hand.

To delineate associations, we followed the same approach as Willner et al. (2019). We did additional TWINSpan classifications of regional data sets (data not shown) to identify the main floristic gradients within each region, evaluate previous association concepts and determine the diagnostic species of associations. The main selection criterion for diagnostic species was their suitability for discriminating the vegetation units along the chosen (ecological and/or geographical) gradient to be reflected in the classification, without following a strict fidelity threshold. Within each alliance, assignment of relevés to associations was done on the basis of the accepted diagnostic species, again using the total cover of the diagnostic species. For the semi-dry grasslands of the northern Alps, we applied the formal definitions established by Willner et al. (2019) without further analysis.

All syntaxon names were critically revised according to the International Code of Phytosociological Nomenclature (Theurillat et al. 2021). Calculations and table manipulations were done with JUICE 7.1 (Tichý 2002).

4. Results

In the first TWINSpan division, xeric grasslands (i.e., rocky steppes and grass steppes) were separated from meso-xeric (i.e., semi-dry) grasslands (Supplement E1). Within the first group (clusters 1–32, TWINSpan group 0), a strong biogeographical gradient was revealed, separating the dry grasslands of Tyrol and adjacent regions (Valtellina, Trento, Engadin, W Carinthia) from those further east (E Carinthia, Styria, Lower Austria). Within the semi-dry grasslands (clusters 33–64, TWINSpan group 1) drier and more mesic types were separated from each other at the 2nd level, followed by a predominantly biogeographical separation at the 3rd level.

In more detail, the following groups were detected in the TWINSpan classification (cluster numbers according to the 6th level of division; association names in brackets indicate that a large portion of their original diagnosis was included in the cluster; names are given in their original form; author names are provided for associations not described by Braun-Blanquet). Clusters 6, 8 and 9 corresponded to ruderal grasslands and were excluded from the further analysis. An “X” in front of the association names indicates that this cluster was dismissed during the syntaxonomic interpretation due to its poor floristic and ecological/geographical independence and merged with another cluster.

TWINSpan group 000

- 1–2 Rocky grasslands in lower altitudes of Vinschgau (*Stipeto-Seselietum varia*)
- 3–4 Grass steppes (*Festuceto-Caricetum supinae*) and rocky steppes in higher altitudes (*Festuceto-Poetum xerophilae*) of Vinschgau and Val Müstair
- 5 Moderate rocky grasslands of Valtellina, Lower Engadin and Tyrolian Inn valley (*Tuniceto-Artemisietum*, *Astragalo-Brometum*, *Teucrietum-Caricetum humilis*, *Stipa*)

capillata-Gesellschaft Hölzel 1996, *Sempervivum tectorum-Festuca valesiaca* community Magnes et al. 2021)

- 6 Ruderal grasslands of Lower Engadin (*Artemisiето-Agrophyretum*)
- 7 Rocky grasslands of western Valtellina, middle Etsch/Adige and Eisack/Isarco valley (*Diplachno-Festucetum vallesiacaе*, *Fumano-Andropogonetum contortii*, *Ischaemo-Diplachnetum*, *Tuniceto-Koelerietum gracilis*)
- 8 Ruderal grasslands of Trentino (*Artemisiето-Agrophyretum*)

TWINSpan group 001

- 9 Ruderal grasslands of Lower Engadin (*Artemisiето-Agrophyretum*)
- 10–13 heterogenous group of rocky grasslands transitional to semi-dry grasslands (X – *Centaureo-Gentianetum cruciatae* p.p., *Astragalo-Brometum* p.p., *Teucrieto-Caricetum humilis* p.p., *Phleeto-Pulsatilletum nigricantis* p.p., see clusters 5 and 19)
- 14 Rocky grasslands on siliceous bedrock of Engadin (*Koelerieto-Poetum xerophilae*)
- 15–16 Rocky grasslands on siliceous bedrock of East Tyrol, Carinthia and Lungau (*Koelerio-Teucrietum montani* Franz in Mucina & Kolbek 1993)

TWINSpan group 010

- 17 Rocky grasslands on serpentine in Styria (*Armeriето-Potentilletum arenariae*)
- 18 Rocky grasslands on calcareous bedrock of eastern Carinthia and Styria (*Seslietum austriacaе*)
- 19 Moderate rocky grasslands of Carinthia and Styria (*Phleeto-Pulsatilletum nigricantis*, *Sileno hayekianaе-Seslietum* Franz in Mucina & Kolbek 1993)
- 20 Moderate rocky grasslands on siliceous bedrock of Lungau (X – *Koelerio-Teucrietum montani* Franz p.p., see clusters 15–16)
- 21 Rocky grasslands of eastern Carinthia and Styria with a high portion of *Seslietalia* species (*Teucrio montani-Seslietum austriacaе*, *Pulsatillo nigricantis-Phleetum seslietosum caeruleae* subass. nov.)
- 22 Rocky grasslands along the eastern margin of the Alps with a high portion of *Seslietalia* species (*Drabo aizoidis-Seslietum* Mucina in Mucina & Kolbek 1993)
- 23 Extreme rocky grasslands with a high portion of *Seslietalia* species of North Tyrol (X – *Globularia cordifolia-Stipa austriaca*-Gesellschaft Hölzel p.p., *Allium montanum-Sesleria varia*-Gesellschaft Smettan, see cluster 31)
- 24 Extreme rocky grasslands with a high portion of *Seslietalia* species of SW Carinthia (*Festuco stenanthae-Stipetum eriocaulis* Franz 1987)

TWINSpan group 011

- 25–26 Grass steppes at the eastern margin of the Alps (*Medicagini-Festucetum valesiacaе* Wagner 1941)
- 27–28 Semi-dry grasslands on loess at the eastern margin of the Alps (X – *Polygalo majoris-Brachypodietum* Wagner p.p., see clusters 37–40)
- 29–30 Rocky grasslands along the eastern margin of the Alps (*Fumano-Stipetum eriocaulis* Wagner 1941)
- 31 Rocky grasslands in the Inn valley of North Tyrol (*Globularia cordifolia-Stipa austriaca*-Gesellschaft Hölzel 1996)

- 32 Rocky grasslands of South Tyrol with *Cleistogenes serotina* (X – *Ischaemo-Diplachnetum* p.p., see cluster 7)

TWINSpan group 100

- 33–36 Moderate rocky grasslands along the eastern margin of the Alps (*Scorzonero austriacae-Caricetum humilis* Willner in Willner et al. 2013)
- 37–40 Semi-dry grasslands along the eastern margin of the Alps (*Polygalo majoris-Brachypodietum* Wagner 1941)

TWINSpan group 101

- 41–44 Semi-dry grasslands of Valtellina, Engadin, East Tyrol, W Carinthia and Lungau, partly transitional towards rocky grasslands (X – *Brachypodieto-Centaureetum bracteatae, Centaureo-Gentianetum cruciatae*)
- 45–46 Semi-dry grasslands of the Tyrolian Inn valley, South Tyrol, Carinthia and Styria (*Potentillo-Festucetum sulcatae, Salvia pratensis-Brometum* Halder 1991, *Astragalo onobrychidis-Brometum* sensu Magnés et al. 2021, *Agrostis capillaris-Avenula adsurgens* community Magnés et al. 2021, *Anthericum ramosum-Brachypodium pinnatum* community Magnés et al. 2021)
- 47 Semi-dry grasslands with *Carex alba* of the Northeastern Alps (*Carex alba-Bromus erectus*-community Willner et al. 2019)
- 48 Semi-dry grasslands with *Carex humilis* of the Northeastern Alps (X – *Euphorbio verrucosae-Caricetum montanae seslerietosum caeruleae* subass. nov. p.p., see clusters 61–64)

TWINSpan group 110

- 49–52 Semi-dry grasslands on more mesic sites of the Northeastern Alps (*Euphorbio verrucosae-Caricetum montanae* Karrer 1985)
- 53 Semi-dry grasslands on slightly acidic soils of the Northern Alps (X – *Euphorbio verrucosae-Caricetum montanae* Karrer p.p.)
- 54 Semi-dry grasslands on slightly acidic soils of the inner Alps (*Agrosti-Dianthetum deltoidis, Potentillo erectae-Brachypodietum* Halder 1991, *Ranunculus bulbosus-Festuca rubra* community Magnés et al. 2021)
- 55–56 Semi-dry and (misclassified) mesic grasslands of the outer ranges of the Alps, mainly between Vorarlberg and Salzburg (X – *Gentiano vernaе-Brometum* sensu Willner et al. 2019 p.p., see clusters 57–58)

TWINSpan group 111

- 57–58 Semi-dry grasslands of the outer ranges of the Alps, mainly between Vorarlberg and Salzburg (*Gentiano vernaе-Brometum* sensu Willner et al. 2019)
- 59–60 Semi-dry grasslands in higher altitudes between Vorarlberg and Salzburg with *Carex sempervirens* (*Carlino-Caricetum sempervirentis* Lutz & Paul 1947)
- 61–64 Semi-dry grasslands with a high portion of *Seslerietalia* species of the Northeastern Alps (*Onobrychido viciifoliae-Brometum* sensu Essl 1998, *Euphorbio verrucosae-Caricetum montanae seslerietosum caeruleae* subass. nov.)

5. Discussion

5.1 Syntaxonomy

5.1.1 Orders and alliances

In accordance with Willner et al. (2019) and Magnes et al. (2021), semi-dry grasslands (order *Brachypodietalia pinnati*) were separated at the highest TWINSpan level. The *Brachypodietalia pinnati* are floristically well defined by a large group of character and differential species (Supplement S1). However, since semi-dry grasslands are relatively rare in the dry inner valleys of the Alps, only a small part of Braun-Blanquet's *Stipo-Poion* corresponds to this order (see discussion of associations below). In contrast, the orders *Festucetalia valesiaca* (grass steppes) and *Stipo-Festucetalia pallentis* (rocky steppes) were not reproduced in our analysis. Instead, a geographical west-east gradient was revealed as the dominant pattern within xeric grasslands. This could be interpreted as support for Braun-Blanquet's concept, although the main split was not between the Pannonian grasslands along the eastern margin of the Alps on the one hand and the inner Alps on the other hand, as suggested by Braun-Blanquet (1961), but further to the west, similar to the concept of Mucina & Kolbek (1993). The dry grasslands of Styria and E Carinthia clearly belong to the alliance *Seslerio-Festucion pallentis* (= *Diantho-Seslerion* sensu Mucina & Kolbek 1993). We also include the *Armerio-Potentilletum arenariae* (sepetine grasslands of Styria) in the *Seslerio-Festucion pallentis* because our results provide little evidence for a separate alliance *Avenulo adsurgentis-Festucion pallentis* (invalidly described by Mucina & Kolbek 1993, see Magnes et al. 2021 for details). Regarding the syntaxonomic status of the *Diplachnion*, all three associations of the Eastern Alps classified by Braun-Blanquet (1961) in this alliance ended up in the same TWINSpan cluster, well embedded within the *Stipo-Poion*. Therefore, we merge the *Diplachnion* with the *Stipo-Poion* and consider the combined unit as western vicariant of the *Seslerio-Festucion pallentis*. The syntaxonomic position of the '*Contorteto-Diplachnetum*' described by Braun-Blanquet (1961) from the Susa valley in the Western Alps is still to be determined. However, the characterisation of the *Diplachnion* in Mucina et al. (2016) as "acidophilous steppic grasslands" within an order of "steppic grasslands on deep basic to neutral mesic soils of precipitation-rich regions of southwestern Europe" is clearly a misinterpretation of the original diagnosis.

Assigning the *Stipo-Poion xerophilae* to an order is not straightforward and, in fact, very problematic for the following reasons: (i) The diagnostic species of the *Festucetalia valesiaca* and *Stipo-Festucetalia pallentis* (Mucina & Kolbek 1993, Willner et al. 2017) are not mutually exclusive in the inner Alps and \pm equally frequent (Supplement S1). Both species groups often co-occur in the same plot (see also Magnes et al. 2021). (ii) Physiognomically, most inner alpine steppes are typical rocky grasslands, with shallow soils and abundant rocky outcrops (Figs. 2 and 3). The only *Stipo-Poion* community resembling a *Festucion valesiaca* grass steppe is the *Festuco-Caricetum supinae* of the Vinschgau (Fig. 2c). This is also the only community where the *Festucetalia valesiaca* species have a higher constancy and average cover than the *Stipo-Festucetalia pallentis* species even if the latter are amended by taxa of more western distribution and typical for rocky grasslands (see below). Taken together, these findings indicate that the diagnostic species of the two orders as determined for east-Central and Eastern Europe (Willner et al. 2017) are not directly applicable to

the inner Alps. Interestingly, the *Festucetalia valesiaca* species are strongly antagonistic to the *Seslerietalia* species (Supplement S1). This might be explained by the opposite climatic and edaphic requirements of the two species groups.

Several “eastern” *Stipo-Festucetalia pallentis* species are absent from the core area of the *Stipo-Poion*, but are replaced by closely related and/or ecologically analogous taxa. Examples are: *Dianthus plumarius* (replaced by *D. sylvestris*), *Erysimum sylvestre* (replaced by *E. rhaeticum*), *Festuca pallens* and *F. stricta* (replaced by *F. bauzanina*), *Jovibarba globifera* (replaced by *Sempervivum arachnoideum* and *S. tectorum*), *Onosma visianii* (replaced by *O. helvetica*), *Pulsatilla grandis* and *P. pratensis* subsp. *nigricans* (replaced by *P. montana*). As these western vicariants frequently co-occur with more widespread *Stipo-Festucetalia pallentis* species such as *Allium lusitanicum*, *Fumana procumbens* and *Teucrium montanum*, it seems reasonable to regard them as diagnostic for this order, while it would hardly make sense to count them as *Festucetalia valesiaca* species. The same applies to the “*Diplachnion* species” *Cleistogenes serotina* (= *Diplachne serotina*) and *Heteropogon contortus*, which are also typical of steep, rocky slopes.

There are (at least) three alternative syntaxonomic solutions for the order level classification of the inner alpine xeric grasslands:

- (1) The *Festucetalia valesiaca* are interpreted as the central order of the class, defined mainly by the absence (or low abundance) of diagnostic species of other orders. If this solution is adopted, some species previously considered as diagnostic of the *Festucetalia valesiaca* (*Bothriochloa ischaemum*, *Festuca valesiaca*, *Stipa capillata*) may become character species of the class or shared diagnostic species of the *Festucetalia valesiaca* and *Stipo-Festucetalia pallentis*. If this option is adopted, only the *Festuco-Caricetum supinae* is likely to remain within the *Festucetalia valesiaca*. Since this association is the nomenclatural type of the *Stipo-Poion xerophilae* (Terzi et al. 2016), the remaining rocky grassland alliance would get the name *Diplachnion serotinae* (type ass.: *Diplachno-Festucetum valesiaca* Br.-Bl. 1961; Terzi et al. 2016). The grass steppes of the Vinschgau, having no character species of their own, could hardly be maintained as a separate alliance (Willner 2020), despite the substantial floristic differences between South Tyrolian and Pannonic steppes, so it would be reasonable to distinguish them at the level of suballiances within a broadly defined *Festucion valesiaca*, as suggested by Lübben & Erschbamer (2021).
- (2) The *Stipo-Festucetalia pallentis* are abandoned as a separate order and reunited with the *Festucetalia valesiaca*, similar to Braun-Blanquet’s concept (but excluding the semi-dry grasslands). In this case, there is no reason to split the *Stipo-Poion xerophilae*, which is in accordance with the close floristic relationship between rocky steppes and grass steppes of the Vinschgau. Moreover, this concept would reflect the situation in Western Europe, where there is also a single order for xeric grasslands (García-Mijangos et al. 2021).
- (3) The *Festucetalia valesiaca* are split into three orders, with the xeric grasslands of the inner Alps being an order in its own right. Again, such a solution would avoid the seemingly artificial splitting of the *Stipo-Poion xerophilae*. However, it would also mean an inflation of orders within the class *Festuco-Brometea*. Moreover, a separate order for the inner alpine xeric grasslands would only make sense if it also includes the *Stipo-Poion carniolicae* of the Western Alps.

In this paper, we maintain a single alliance *Stipo-Poion xerophilae* for the xeric grasslands in the western part of the Eastern Alps, as our results provide no support for splitting it into two or more alliances. Thus, we preliminarily adopt option 2. However, this should not be interpreted as a proposal to abandon the order *Stipo-Festucetalia pallentis*, as only a pan-European revision of the class *Festuco-Brometea* can reveal which order concept is the most appropriate one. It should be noted, however, that most *Stipo-Festucetalia* species present in the *Stipo-Poion* also occur in the Balkanic order *Koelerietalia splendidis* (Vassilev et al. 2024).

The proposed delimitation between *Stipo-Poion xerophilae* and *Seslerio-Festucion pallentis*, which roughly goes through central Carinthia, is not only supported by the floristic evidence, but also reflects a different biogeographical history: As shown by Kirschner et al. (2020), *Stipa capillata* and other steppe species did not migrate from the east into the inner valleys of the Alps and belong to genetically different lineages than the Pannonian populations. The most likely explanation for this is that the *Stipo-Poion* communities survived the Last Glacial Maximum (LGM) at the southern margin of the Alps and followed the retreating glaciers northwards into the mountain range. In contrast, the *Seslerio-Festucion pallentis* communities occur in areas that were mostly unglaciated during the LGM, so that *in-situ* survival of these steppe grasslands is very likely – as exemplified by the Styrian endemics *Pulsatilla styriaca* and *Sempervivum pitonii* and molecular studies on Pannonian steppe plants (Willner et al. 2021).

5.1.2 Associations

Most associations described from the study area were reproduced by the TWINSPLAN classification (Supplement E2). However, there are a few notable exceptions.

The three associations described by Braun-Blanquet (1961) from the vicinity of Bozen (*Fumano-Andropogonetum contortii*, ‘*Ischaemo-Diplachnetum*’ and ‘*Tuniceto-Koelerietum gracilis*’) were not separated from each other even at the 6th level of division. We therefore merge them under the name *Bothriochloo ischaemi-Diplachnetum*. The *Diplachno-Festucetum valesiaca*e of the Valtellina was also placed in the same cluster. However, given its geographical isolation, we preliminarily maintain it as a separate association. Further studies based on additional data from both areas are needed to decide whether *Bothriochloo-Diplachnetum* and *Diplachno-Festucetum* should be merged or kept separate.

Astragalo-Brometum and *Teucrio-Caricetum humilis* must be merged into one association, as already suspected by Hölzel (1996). This community, representing a moderate type of rocky grassland, is dominated by *Bromus erectus*, *Carex humilis* and *Festuca rupicola*. *Brachypodietalia* species such as *Salvia pratensis*, and the absence of *Stipa eriocalis* and *Fumana procumbens* differentiate it from the more extreme rocky grasslands of the same region, which correspond to the *Achnathero-Stipetum* (= *Globularia cordifolia-Stipa austriaca*-Gesellschaft sensu Hölzel 1996). Similar types of “moderate rocky grasslands” can be found in many regions of Central Europe, especially on calcareous bedrock (*Sileno hayekianae-Seslerietum* and ‘*Phleeto-Pulsatilletum nigricantis*’ in Carinthia and Styria, see below; *Scorzonero austriacae-Caricetum humilis* in Lower Austria and *Orphantho luteae-Caricetum humilis* in Slovakia, see Willner et al. 2013). The transitional character of these grasslands makes it difficult to draw a sharp line towards semi-dry grasslands and may cause syntaxonomic and nomenclatural confusion. Indeed, Willner et al. (2019) and Magnes et al. (2021) interpreted the name *Astragalo-Brometum* as referring to inner alpine semi-dry grasslands. However, a closer inspection of its nomenclatural type – a relevé published by

Braun-Blanquet (1918) under the name *Xero-Brometum erecti* – and personal observations of the first author at the locus classicus (Tschanüff Castle in Lower Engadin) led to the conclusion that the *Astragalo-Brometum* is in fact a rocky grassland. Thus, the correct name for the moderate rocky grassland community of the Lower Engadin and Tyrolian Inn valley is *Astragalo onobrychidis-Brometum erecti* Br.-Bl. 1950. The *Sempervivum tectorum-Festuca valesiaca* community of Magnés et al. (2021) also belongs here.

The ‘*Tuniceto-Artemisietum campestris*’ of the Valtellina is very similar to the *Astragalo-Brometum*, as noted by Braun-Blanquet (1961) himself, and might also be joined with the latter. As in the case of the *Diplachno-Festucetum valesiaca*, further studies are needed to give a definite answer to this question.

Three associations classified by Braun-Blanquet (1961, 1976) in the *Stipo-Poion xerophilae* clearly belong to semi-dry grasslands and are therefore transferred to the *Cirsio-Brachypodium*, order *Brachypodietalia pinnati*: ‘*Brachypodiato-Centaureetum bracteatae*’ (described from Valtellina), *Centaureo-Gentianetum cruciatae* (Engadin) and ‘*Potentillo-Festucetum sulcatae*’ (Carinthia). The position of the ‘*Potentillo-Festucetum sulcatae*’ was rather unexpected because Mucina & Kolbek (1993) included this community in the *Festucion valesiaca*. However, there are hardly any *Festucetalia valesiaca* species in it, while *Brachypodietalia* species are quite abundant. Joining ‘*Phleeto-Pulsatilletum nigricantis*’ and ‘*Potentillo-Festucetum sulcatae*’, as proposed by Franz (1989) and Mucina & Kolbek (1993), is not possible because these associations belong to different alliances and orders (see also Magnés et al. 2021). On the other hand, the floristic differences between ‘*Brachypodiato-Centaureetum bracteatae*’, *Centaureo-Gentianetum cruciatae* and ‘*Potentillo-Festucetum sulcatae*’ are very weak. Thus, we interpret them as geographical variants of the same association, for which we select the name *Potentillo pusillae-Festucetum rupicola*. Included are also the semi-dry grasslands of the Tyrolian Inn valley and South Tyrol, which have been described under various invalid names, e.g., *Salvio pratensis-Brometum* (Halder 1991) and *Potentillo erecti-Brachypodietum brometosum erecti* (Unterluggauer 2016). Indeed, *Festuca rupicola* is the most suitable name-giving grass species for this unit as it is a constant and often dominant element while *Bromus erectus* and *Brachypodium rupestre* may be co-dominant or completely absent. The abundance of the latter two species strongly depends on the management of the grassland, and since there are no corresponding differences in the total species combination, it cannot be given a high syntaxonomic value. An example of a fringe-like, ± abandoned grassland dominated by *Brachypodium rupestre* is the *Asperulo tinctoriae-Brachypodietum rupestris* described by Franz in Mucina & Kolbek (1993), which we also include here. Whether the *Potentillo-Festucetum* also extends into the Styrian Mur valley, is somewhat doubtful. Magnés et al. (2021) described an *Anthericum ramosum-Brachypodium pinnatum* community from this area and suggested its inclusion in the *Scabioso ochroleucae-Brachypodietum* Klika 1933. From a biogeographical point of view, it would probably make sense to exclude semi-dry grasslands with *Brachypodium pinnatum* and *Potentilla incana* from the *Potentillo-Festucetum*, which is characterised by *Brachypodium rupestre* and *Potentilla pusilla*. Unfortunately, the exact distribution limits of the two species pairs are still unclear.

Besides the *Potentillo-Festucetum*, there is another association of semi-dry grasslands in the inner Alps on more acidic soils. It was described by Braun-Blanquet (1976) under the name *Agrostio-Dianthetum deltoidis*, and according to our results it is more widespread than previously thought, including the *Potentillo erectae-Brachypodietum* Halder 1991 nom. inval. of Tyrol (see also Unterluggauer 2016) and grasslands in Carinthia and Lungau.

For comparison, we also included the semi-dry grasslands of the northern outer Alps in our analysis, which have a very different climate with high annual precipitation. These grasslands have already been studied by Willner et al. (2019), and we used the formal definitions established in the latter study for their classification. However, some remarks on their syntaxonomy may be provided here. First, the separation between *Festuco rupicolae-Brometum* and *Euphorbio verrucosae-Caricetum montanae* was not reproduced in our TWINSpan classification (Supplement E2). This can be explained by the fact that the *Festuco rupicolae-Brometum*, whose main distribution lies outside the study area, is only negatively differentiated from the *Euphorbio verrucosae-Caricetum montanae* (Willner et al. 2019). Thus, the floristic difference between the two association is only revealed on a larger geographic scale. The same is true for the *Mesobrometum* and *Gentiano vernaie-Brometum* within the alliance *Mesobromion*. In Upper Austria, a grassland type with high portion of dealpine species was separated on a relatively high level (clusters 61–64, corresponding to the *Onobrychido viciifoliae-Brometum* sensu Essl 1998). However, we suggest to treat this unit only as a subassociation *Euphorbio verrucosae-Caricetum montanae seslerietosum caeruleae*. It is analogous to the *Koelerio-Seslerietum* of southern Germany, and for consistency we suggest to reduce the latter to subassociation level as well, namely *Gentiano vernaie-Brometum seslerietosum caeruleae*. Despite the considerable number of differential species, there are many transitions between the typical and *Sesleria*-subunits, so the status of subassociations seems more appropriate.

5.1.3 Syntaxonomic overview

Formal description of nomenclatural novelties and lectotypes are provided in the Appendix.

Class *Festuco-Brometea* Br.-Bl. et Tx. ex Klika et Hadač 1944

Order ??? [*Festucetalia valesiaca* Br.-Bl. et Tx. ex Br.-Bl. 1950 s.l.]

All. (1) *Stipo-Poion xerophilae* Br.-Bl. et Richard 1950 (incl. *Diplachnion serotinae* Br.-Bl. 1961)

- (1.1) *Diplachno-Festucetum valesiaca* Br.-Bl. 1961
- (1.2) *Bothriochloa ischaemi-Diplachnetum* Br.-Bl. 1961 nom. mut. (*'Ischaemo-Diplachnetum'*; incl. *'Fumano-Andropogonetum contorti'*, *'Tuniceto-Koelerietum gracilis'*)
- (1.3) *Seselio levigati-Stipetum capillatae* Br.-Bl. 1936 nom. invers. (*'Stipeto-Seselietum levigatae'*, *'Stipeto-Seselietum variae'*)
- (1.4) *Festuco valesiaca-Caricetum supinae* Br.-Bl. 1936
- (1.5) *Poo xerophilae-Festucetum valesiaca* Br.-Bl. 1936
- (1.6) *Petrorragio saxifragae-Artemisietum campestris* Br.-Bl. 1961 nom. mut. (*'Tuniceto-Artemisietum campestris'*)
- (1.7) *Astragalo onobrychidis-Brometum* Br.-Bl. 1950 (incl. *Teucro-Caricetum humilis* Br.-Bl. 1961)
- (1.8) *Achnathero-Stipetum capillatae* (Br.-Bl. ex Kielhauser 1954) Mucina in Mucina et Kolbek 1993
- (1.9) *Sileno hayekiana-Seslerietum caeruleae* Franz in Mucina et Kolbek 1993 nom. corr.
- (1.10) *Festuco stenanthae-Stipetum eriocalis* Franz 1987
- (1.11) *Koelerio-Poetum xerophilae* Br.-Bl. 1961
- (1.12) *Koelerio-Teucrietum montani* Franz in Mucina et Kolbek 1993

All. (2) *Seslerio-Festucion pallentis* Klika 1931 nom. corr.

- (2.1) *Armerio-Potentilletum arenariae* Br.-Bl. 1961
- (2.2) *Seselietum austriaci* Br.-Bl. 1961
- (2.3) *Pulsatillo nigricantis-Phleetum* Br.-Bl. 1961 nom. invers. ('*Phleeto-Pulsatilletum nigricantis*')
 - (2.3a) *Pulsatillo nigricantis-Phleetum typicum*
 - (2.3b) *Pulsatillo nigricantis-Phleetum seslerietosum* subass. nov.
- (2.4) *Teucro montani-Seselietum austriaci* Niklfeld 1979
- (2.5) *Drabo aizoidis-Seslerietum caeruleae* Mucina in Mucina et Kolbek 1993 nom. corr.
- (2.6) *Fumano-Stipetum eriocaulis* Wagner 1941 mut. Zólyomi 1966
- (2.7) *Scorzonero austriacae-Caricetum humilis* Willner in Willner et al. 2013

All. (3) *Festucion valesiaca* Klika 1931

- (3.1) *Stipo capillatae-Festucetum valesiaca* Sillinger 1930
- (3.2) *Medicagini-Festucetum valesiaca* Wagner 1941
- (3.3) *Salvio nemorosae-Festucetum rupicola* Zólyomi ex Soó 1959

Order *Brachypodietalia pinnati* Korneck 1974 nom. cons. propos. (= *Brometalia erecti* Koch 1926)

All. (4) *Cirsio-Brachypodion* Hadač et Klika 1944

- (4.1) *Potentillo pusillae-Festucetum rupicola* Br.-Bl. 1961 nom. corr. (incl. *Centaureo bracteatae-Brachypodietum* Br.-Bl. 1961 nom. invers., *Centaureo-Gentianetum cruciatae* Br.-Bl. 1976, *Salvio pratensis-Brometum* Halder 1991 nom. inval., *Asperulo tinctoriae-Brachypodietum rupestris* Franz in Mucina et Kolbek 1993)
- (4.2) *Agrostio-Dianthetum deltoidis* Br.-Bl. 1976 (incl. *Potentillo erectae-Brachypodietum* Halder 1991 nom. inval.)
- (4.3) *Polygalo majoris-Brachypodietum* Wagner 1941
- (4.4) *Festuco rupicola-Brometum* Zielonkowski 1973 (incl. *Filipendulo-Brometum* Hundt et Hübl ex Willner 2013)
- (4.5) *Euphorbio verrucosae-Caricetum montanae* Karrer 1985
 - (4.5a) *Euphorbio verrucosae-Caricetum montanae typicum*
 - (4.5b) *Euphorbio verrucosae-Caricetum montanae seslerietosum* subass. nov.

All. (5) *Mesobromion erecti* (Br.-Bl. et Moor 1938) Zoller 1954 nom. cons. propos. (= *Bromion erecti* Koch 1926)

- (5.1) *Mesobrometum erecti* Scherrer ex Koch 1926 (= *Onobrychido viciifoliae-Brometum* Müller 1966)
- (5.2) *Gentiano verna-Brometum* Kuhn ex Oberd. 1957 (incl. *Astrantio majoris-Brometum* Machold 1996)
 - (5.2a) *Gentiano verna-Brometum typicum*
 - (5.2b) *Gentiano verna-Brometum seslerietosum caeruleae* (Br.-Bl. et Moor 1938) comb. nov. (= *Mesobrometum seslerietosum caeruleae* Br.-Bl. et Moor 1938 = *Koelerio-Seslerietum* Oberd. 1957 nom. invers.)
- (5.3) *Carlino-Caricetum sempervirentis* Lutz et Paul 1947

5.2 Description of the vegetation units

A shortened synoptic table is provided in Supplement S1 (for the full version of the same table, see Supplement E3, for data sources Supplement E4). Photos of selected associations are given in Figures 2 and 3, their geographical distribution in Figures 4–7.

(1) *Stipo-Poion xerophilae*

(1.1) *Diplachno-Festucetum valesiaca*

Rocky grasslands on steep slopes in the Valtellina between Lake Como and Tirano. Dominant grasses are *Heteropogon contortus*, *Cleistogenes serotina*, *Festuca valesiaca* and *Bothriochloa ischaemum*.

(1.2) *Bothriochloa ischaemi-Diplachnetum*

Rocky grasslands similar to the previous association, distributed in the Etsch/Adige valley between Trento and Meran and in the Eisack valley up to Brixen (in impoverished form up to Sterzing). *Heteropogon contortus* only occurs between Bozen and Meran. Floristic highlights not present in other associations include *Eryngium amethystinum* (only near Trento; Pedrotti 1963), *Artemisia alba* and *Fumana ericifolia*.

(1.3) *Seselio levigati-Stipetum*

This association replaces the previous one in the Vinschgau, where it occurs on steep, rocky slopes. According to Braun-Blanquet (1961), the association is restricted to the lower Vinschgau between Meran and Schlanders. However, similar rocky grasslands occur in the upper Vinschgau (*Festuco-Caricetum supinae stipetosum pennatae* sensu Lübben & Erschbamer 2021) and should also be included in the *Seselio levigati-Stipetum*. The typical *Stipa* species in this unit is, in fact, *S. eriocalis* (which was not distinguished from *S. pennata* s.str. by Lübben & Erschbamer and most other authors studying this community), while the association name is derived from *S. capillata* (Braun-Blanquet 1936). Differential species against the *Bothriochloa ischaemi-Diplachnetum* are *Erysimum rhaeticum*, *Plantago strictissima*, *Sempervivum arachnoideum* and *Stipa capillata*. *Seseli pallasii*, *Onosma helvetica* and *Ephedra helvetica* are character species of this association within the Eastern Alps. *Cleistogenes serotina* only occurs sporadically in the eastern half of the distribution range of this association. Whether *Seseli levigatum* A.Kern., used by Braun-Blanquet (1936) as the name-giving taxon, has any taxonomic value, remains unclear. Current checklists treat it as a synonym of *Seseli pallasii*. However, it is striking that *Seseli pallasii* has a very different ecology in the Vinschgau compared to the Pannonian region where it is typical for loess grasslands on deep soils (Fischer et al. 2008).

(1.4) *Festuco valesiaca-Caricetum supinae*

Grass steppes of the Vinschgau resembling the *Festucion valesiaca* of eastern Central Europe. Diagnostic species of rocky grasslands are rare or completely absent. Dominant graminoids are *Festuca valesiaca*, *Stipa capillata*, *Bothriochloa ischaemum* and *Carex supina*, the last one being a character species of this association within the Eastern Alps. *Veronica verna* agg. and *Medicago minima* are differential species against the *Seselio levigati-Stipetum*. Compared to other associations of the *Stipo-Poion xerophilae*, the *Festuco-Caricetum supinae* occurs on more gentle slopes, which explains the paucity of rocky grassland species.

(1.5) *Poo xerophilae-Festucetum valesiaca*

Similar to the *Festuco-Caricetum supinae*, but clearly a rocky grassland due to the high frequency of *Poa badensis* agg., *Carex humilis*, *Teucrium montanum* and *Dianthus sylvestris*, this association is distributed in the Val Müstair and in higher altitudes of the upper Vinschgau. It is therefore the continuation of the *Seselio levigati-Stipetum* towards cooler climatic conditions. *Thesium linophyllum*, *Pimpinella saxifraga* and *Achillea nobilis* are differential species against the previous two associations (*Achillea nobilis* even being a character species of this association within the Eastern Alps). *Stipa eriocalis* and *Fumana procumbens*, which are both very frequent in the *Seselio levigati-Stipetum*, are almost completely absent.

(1.6) *Petrorhagio saxifragae-Artemisietum campestris*

Moderate rocky grasslands of the upper Valtellina with a relatively high portion of *Brachypodietalia* species (e.g., *Centaurea scabiosa*, *Salvia pratensis*, *Pimpinella saxifraga*, *Brachypodium rupestre*). Similar to the following association into which it might be included (see discussion above).

(1.7) *Astragalo onobrychidis-Brometum*

Moderate rocky grasslands of the Lower Engadin and Tyrolian Inn valley. The dominant graminoids are *Bromus erectus*, *Festuca rupicola* and *Carex humilis*. The *Astragalo-Brometum* mainly occurs on calcareous substrates. Therefore, silicole species widespread in the Vinschgau such as *Sempervivum arachnoideum* are mostly absent in this community. Positive differential species against the Vinschgau grasslands are *Globularia bisnagarica* and *Asperula cynanchica*. A floristic curiosity is the occurrence of *Festuca guestfalica* in this and the previous association. *Festuca valesiaca* is mainly restricted to sites on mixed and partly siliceous bedrock which are floristically transitional towards the *Poo xerophilae-Festucetum valesiaca* (cf. *Sempervivum tectorum-Festuca valesiaca* community sensu Magnes et al. 2021).

(1.8) *Achnathero-Stipetum*

Rocky grasslands of the Tyrolian Inn valley on steep slopes with extremely shallow soils. The herb layer has a rather low cover. Differential species against the *Astragalo-Brometum*, which occurs in the same region on less extreme sites, are *Stipa eriocalis*, *Achnatherum calamagrostis*, *Fumana procumbens*, *Globularia cordifolia*, *Potentilla caulescens*, *Carex mucronata*, *Erica carnea* and *Asplenium ruta-muraria*, whereas *Astragalus onobrychis* and *Salvia pratensis* are largely absent. This association corresponds to the *Globularia cordifolia-Stipa austriaca*-Gesellschaft of Hölzel (1996). Moreover, we include the *Allium montanum-Sesleria varia*-Gesellschaft of Smettan (1981) and two plots from Salzburg, one representing the only known locality of *Stipa eriocalis* in this federal state.

(1.9) *Sileno hayekianae-Seslerietum*

Moderate rocky grasslands of W Carinthia transitional between the *Stipo-Poion xerophilae* and *Seslerio-Festucion pallentis*. Ecologically, they are similar to the *Astragalo-Brometum* and *Pulsatillo nigricantis-Phlegetum*. Floristically, they differ from the *Astragalo-Brometum* by the presence of *Erysimum sylvestre* and *Verbascum chaixii*, the higher frequency of *Sesleria caerulea* and the absence of *Asperula cynanchica*, *Astragalus onobrychis*,



Fig. 2. Grasslands of the *Stipo-Poion xerophilae*: **a)** *Bothriochloa ischaemi-Diplachnetum* near Bozen, South Tyrol; **b)** *Seselium levigatum-Stipetum* near Schlanders, South Tyrol; **c)** *Festuca valesiaca-Caricetum supinae* near Tartsch, South Tyrol; **d)** *Astragalus onobrychidis-Brometum* near Kauns, North Tyrol; **e)** *Achnathero-Stipetum* near Silz, North Tyrol; **f)** *Koelerio-Teucrietum montani* near Virgen, East Tyrol (Photos: W. Willner, a–c June 2023, d July 2023, e July 2022, f July 2018).

Abb. 2. Trockenrasen des *Stipo-Poion xerophilae*: **a)** *Bothriochloa ischaemi-Diplachnetum* bei Bozen, Südtirol; **b)** *Seselium levigatum-Stipetum* bei Schlanders, Südtirol; **c)** *Festuca valesiaca-Caricetum supinae* bei Tartsch, Südtirol; **d)** *Astragalus onobrychidis-Brometum* bei Kauns, Nordtirol; **e)** *Achnathero-Stipetum* bei Silz, Nordtirol; **f)** *Koelerio-Teucrietum montani* im Virgental, Osttirol (Fotos: W. Willner, a–c Juni 2023, d Juli 2023, e Juli 2022, f Juli 2018).

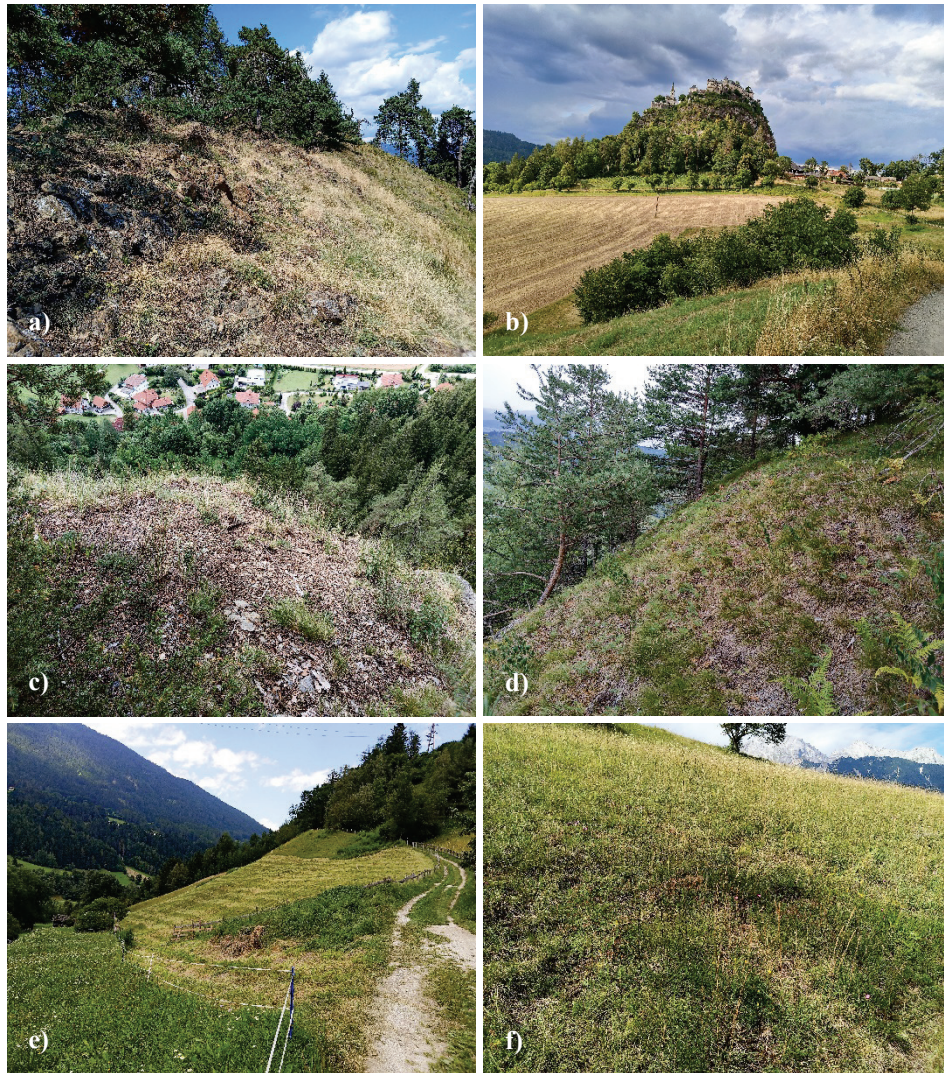


Fig. 3. Grasslands of the *Seslerio-Festucion pallentis* (a–d) and *Cirsio-Brachypodium* (e–f): **a)** *Armerio-Potentilletum arenariae* on Trafössberg, Styria; **b)** castle Hochosterwitz with *Seselietum austriaci* on the steep rocky slope; **c)** *Seselietum austriaci* near Friesach, Carinthia; **d)** *Pulsatillo nigricantis-Phleetum* near St. Georgen am Längsee, Carinthia; **e)** *Potentillo pusillae-Festucetum rupicolae* in the Stubai Valley, North Tyrol; **f)** *Potentillo pusillae-Festucetum rupicolae* on Mieminger Plateau, North Tyrol (Photos: W. Willner, July 2022).

Abb. 3. Trockenrasen des *Seslerio-Festucion pallentis* (a–d) und Halbtrockenrasen des *Cirsio-Brachypodium* (e–f): **a)** *Armerio-Potentilletum arenariae* am Trafössberg, Steiermark; **b)** Burgfelsen von Hochosterwitz mit *Seselietum austriaci*; **c)** *Seselietum austriaci* bei Friesach, Kärnten; **d)** *Pulsatillo nigricantis-Phleetum* bei St. Georgen am Längsee, Kärnten; **e)** *Potentillo pusillae-Festucetum rupicolae* im Stubaital, Nordtirol; **f)** *Potentillo pusillae-Festucetum rupicolae* am Mieminger Plateau, Nordtirol (Fotos: W. Willner, Juli 2022).

Bromus erectus, *Stipa capillata* and *Bothriochloa ischaemum*. From the *Pulsatillo nigricantis-Phleetum* the association differs by the presence of *Dianthus sylvestris* and the absence of *Dianthus carthusianorum*, *Potentilla incana* and *Scabiosa ochroleuca*, which justifies its inclusion in the *Stipo-Poion xerophilae*. Moreover, the association is differentiated from both by the presence of the name-giving *Silene hayekiana*. The latter is now included in *S. saxifraga* (Durovic et al. 2017), but this doesn't change its diagnostic value within the dry grasslands of the Eastern Alps.

(1.10) *Festuco stenanthae-Stipetum eriocaulis*

In analogy to the *Achnathero-Stipetum*, this association can be seen as an ecological vicariant of the previous association on extreme rocky sites. However, it is only known from a single location in Carinthia (Dobratsch mountain near Villach). Differential species against the *Sileno hayekianae-Seslerietum* are *Stipa eriocaulis*, *Festuca stenantha*, *Carex mucronata*, *Sedum dasyphyllum*, *Euphrasia salisburgensis*, *Artemisia nitida*, *Asperula aristata*, *Kernera saxatilis* and *Primula auricula*. A similar grassland was documented from the Dolomites by Pignatti & Pignatti (2014) under the name *Viola pinnata* community. Thus, it is possible that the association is more widespread in the southern Alps.

(1.11) *Koelerio-Poetum xerophilae*

This and the following association are found in areas with siliceous bedrock and less pronounced continentality. They are mainly characterised by the absence of several species such as *Carex humilis*, *Astragalus onobrychis*, *Festuca valesiaca*, *Stipa capillata* and *Bothriochloa ischaemum*. Most similar is the *Poo xerophilae-Festucetum*, as already pointed out by Braun-Blanquet (1961), with which they share the high frequency of *Poa badensis* agg. and *Pimpinella saxifraga*, among others. The *Koelerio-Poetum xerophilae* is only found in the Engadin, where it replaces the basiphilous *Astragalo-Brometum* towards the west. Shared differential species with the Vinschgau grasslands are *Veronica verna* agg. and *Plantago strictissima* while *Trifolium aureum* and *Cerastium arvense* are almost exclusively found in this association among the dry grasslands of the study area.

(1.12) *Koelerio-Teucrietum montani*

This association, first described by Franz (1989), is an eastern vicariant of the previous unit, slightly more basiphilous, and differentiated by *Gypsophila repens*, *Juniperus sabina* and *Saxifraga paniculata*. It is distributed from the Brenner pass in the west to the Lungau in the east, with the Virgen valley in East Tyrol and the Upper Möll valley in Carinthia being its core areas. *Dianthus carthusianorum*, *Erysimum sylvestre* and *Jovibarba globifera* indicate a transitional position towards the *Seslerio-Festucion pallentis* (where the association was placed by Mucina & Kolbek 1993). However, the strong presence of *Dianthus sylvestris*, *Potentilla pusilla* and *Sempervivum arachnoideum* justify an inclusion in the *Stipo-Poion xerophilae*.

(2) *Seslerio-Festucion pallentis*

(2.1) *Armerio-Potentilletum arenariae*

Rocky grasslands on serpentine, differentiated by *Armeria elongata* and *Asplenium cuneifolium*, among others. The dominant graminoids are *Festuca pallens* and *Carex humilis*, the cover of the herb layer is rather low. The association occurs in only two localities in Styria (Magnes et al. 2021).

(2.2) *Seselietum austriaci*

This association comprises the extreme rocky grasslands of E Carinthia and Styria (south of the main alpine divide), except those on serpentine. The main graminoids are *Festuca pallens*, *Carex humilis* and *Sesleria caerulea*. *Stipa eriocalis* only occurs in two localities. Differential species against the following association are *Festuca pallens*, *Seseli austriacum*, *Asplenium ruta-muraria* and *Dianthus plumarius* subsp. *hoppei*. The Styrian endemic *Pulsatilla styriaca* may be considered as a character species of this association.

(2.3) *Pulsatillo nigricantis-Phleetum*

Moderate rocky grasslands of E Carinthia and Styria. This is an ecological vicariant of the *Seselietum austriaci*, which occurs in the same region, and a geographical vicariant of the *Astragalo-Brometum* and *Sileno hayekianaes-Seslerietum* (see above). The main graminoids are *Festuca rupicola* and *Carex humilis*. Differential species against the *Seselietum austriaci* are *Brachypodium rupestris*, *Festuca rupicola*, *Pulsatilla pratensis* subsp. *nigricans* and *Salvia pratensis*. Three relevés of this community with measurements of air and soil temperature were presented by Franz et al. (2022; units D–F).

Besides the typical *Pulsatillo nigricantis-Phleetum*, as described by Braun-Blanquet (1961), a subassociation *Pulsatillo nigricantis-Phleetum seslerietosum caeruleae* can be distinguished, which is floristically transitional to the following association. *Sesleria caerulea*, *Buphthalmum salicifolium*, *Polygala chamaebuxus*, *Acinos alpinus* and *Leontodon incanus* are the differential species of this subassociation.

(2.4) *Teucrio montani-Seselietum austriaci*

This rocky grassland association, described by Niklfeld (1979), occurs in the Northern Limestone Alps, a region with much higher precipitation than the inner Alps. It is clearly transitional towards the order *Seslerietalia*, but the *Festuco-Brometea* species have a slightly higher total cover than the *Seslerietea* species (see also Greimler & Mucina 1992). Differential species against the previous associations of the alliance are *Teucrium montanum*, *Globularia cordifolia*, *Erica carnea*, *Kernera saxatilis*, *Potentilla caulescens*, *Euphrasia salisburgensis* and *Carex mucronata*. Negative differential species (due to their absence) are *Potentilla incana*, *Scabiosa ochroleuca*, *Genista pilosa* and *Alyssum montanum*.

(2.5) *Drabo aizoidis-Seslerietum caeruleae*

This and the following three associations are restricted to the eastern margin of the Alps, adjacent to the Vienna Basin. The *Drabo-Seslerietum* is found at climatically cooler sites, either in the montane zone (corresponding to the *Fumano-Stipetum laserpitietosum sileris* Niklfeld 1964) or, in lower altitudes, on north-facing slopes. It is usually dominated by *Sesleria caerulea*, and it is the only dry grassland community in the study area that is typical for north exposition. Differential species are *Draba aizoides* subsp. *beckeri*, *Achillea clavennae*, *Peltaria alliacea*, *Primula auricula* and (only against the following two associations) *Seseli austriacum*. [See Willner et al. (2013) for a detailed description of this association.]

(2.6) *Fumano-Stipetum eriocalis*

Rocky grasslands along the eastern margin of the Alps, dominated by *Stipa eriocalis*, *Festuca stricta* and *Carex humilis*. The *Fumano-Stipetum* has several species in common with the next association, which are absent or mostly absent in other regions of the Eastern Alps (Supplement S1): *Chamaecytisus ratisbonensis*, *Galatella linosyris*, *Helianthemum canum*, *Inula ensifolia*, *Linum tenuifolium*, *Pulsatilla grandis*, *Scabiosa canescens*,

Scorzonera austriaca, *Thesium linophyllum*. Differential species of this association are *Festuca stricta*, *Campanula sibirica*, *Hornungia petraea*, *Jurinea mollis*, *Ononis pusilla*, *Onosma visianii*, *Seseli hippomarathrum* and *Seseli osseum*. [See Willner et al. (2013) for a detailed description of this association.]

(2.7) *Scorzonero austriacae-Caricetum humilis*

Moderate rocky grasslands along the eastern margin of the Alps, dominated by *Carex humilis*, *Festuca rupicola* and *Stipa pennata* s. str. (*S. joannis*). Differential species are *Scorzonera purpurea*, *Adonis vernalis*, *Seseli annuum* and *Inula hirta*. [See Willner et al. (2013) for a detailed description of this association.]

(3) *Festucion valesiaca*

On the eastern margin of the Alps, the *Festucion valesiaca* only occurs in a few localities. Willner et al. (2013) distinguished three associations: (3.1) *Stipo capillatae-Festucetum valesiaca* on Jurassic limestone, (3.2) *Medicagini-Festucetum valesiaca* on dolomite, and (3.3) *Salvio nemorosae-Festucetum rupicolae* on loess. The *Medicagini-Festucetum valesiaca* is a doubtful association transitional between *Fumano-Stipetum eriocaulis* and *Stipo capillatae-Festucetum valesiaca*. The *Salvio nemorosae-Festucetum rupicolae* is present at a single location (Eichkogel near Mödling) which, geologically, does not belong to the Alps but to the Vienna Basin.

(4) *Cirsio-Brachypodion*

(4.1) *Potentillo pusillae-Festucetum rupicolae*

Semi-dry grasslands of the inner Alps on base-rich, often calcareous soils. The dominant grasses are *Festuca rupicola*, *Brachypodium rupestre* and *Bromus erectus*. Differential species against the following association are: *Asperula cynanchica*, *Carex humilis*, *Medicago falcata*, *Onobrychis viciifolia* agg., *Petrorhagia saxifraga*, *Stachy recta*, *Teucrium chamaedrys*, *Verbascum chaixii* and *Vincetoxicum hirundinaria*.

(4.2) *Agrostio-Dianthetum deltoidis*

Semi-dry grasslands of the inner Alps on slightly acidic soils. Dominant grasses are *Festuca rupicola* and *Brachypodium rupestre*. The species composition is more mesic than in the previous association; the differential species are *Agrostis capillaris*, *Anthoxanthum odoratum*, *Euphrasia officinalis*, *Festuca rubra* agg., *Dianthus deltoides*, *Holcus lanatus*, *Luzula campestris* agg., *Lychnis viscaria*, *Nardus stricta*, *Potentilla erecta* and *Ranunculus acris*.

(4.3) *Polygalo majoris-Brachypodietum*

Semi-dry grasslands on base-rich, calcareous soils of the Pannonic region. In the study area, the *Polygalo majoris-Brachypodietum* only occurs along the eastern margin of the Alps, which is also the locus classicus of this association (Wagner 1941). A more detailed description is provided in Willner et al. (2013, 2019).

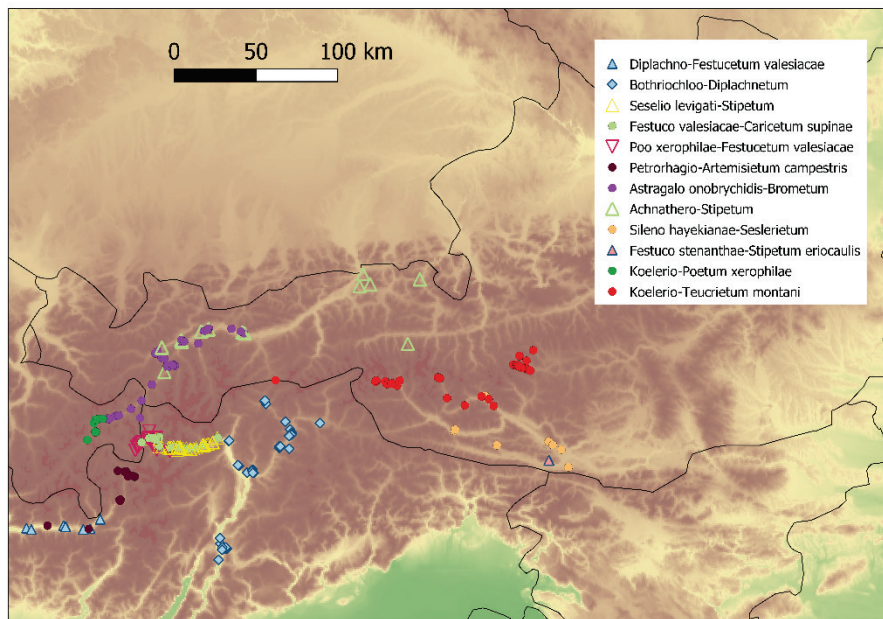


Fig. 4. Distribution of *Stipo-Poion xerophilae* communities in the Eastern Alps.

Abb. 4. Verbreitung der *Stipo-Poion xerophilae*-Gesellschaften in den Ostalpen.

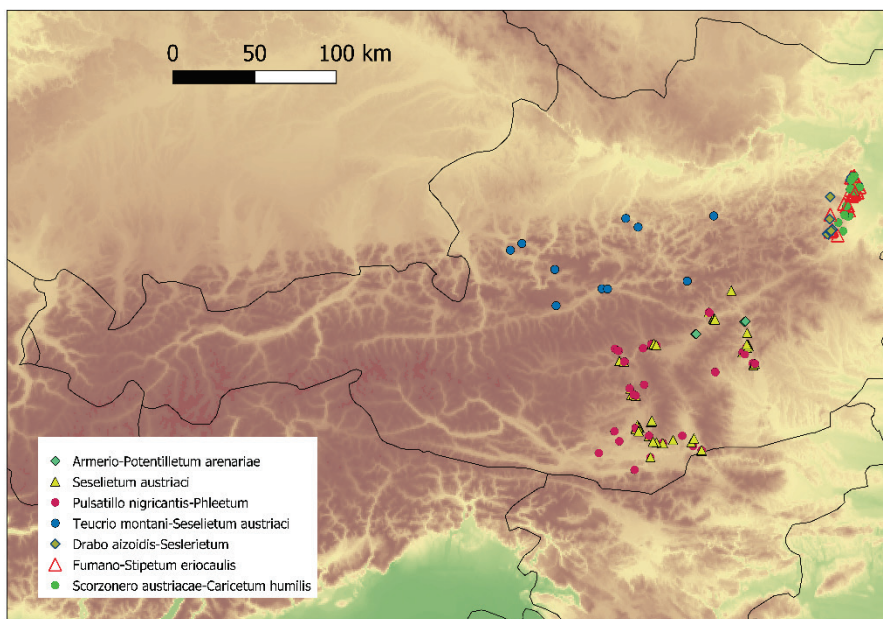


Fig. 5. Distribution of *Seslerio-Festucion pallentis* communities in the Eastern Alps.

Abb. 5. Verbreitung der *Seslerio-Festucion pallentis*-Gesellschaften in den Ostalpen.

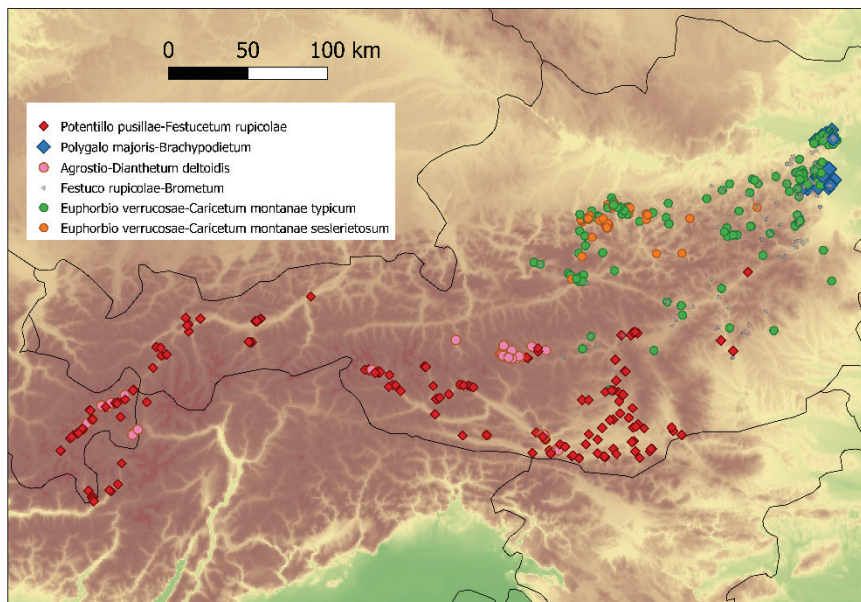


Fig. 6. Distribution of *Cirsio-Brachypodium* communities in the Eastern Alps. Note that *Potentillo pusillae-Festucetum rupicolae* and *Agrostio-Dianthetum deltoidis* also occur in South Tyrol, but there were no coordinates available for the relevés.

Abb. 6. Verbreitung der *Cirsio-Brachypodium*-Gesellschaften in den Ostalpen. *Potentillo pusillae-Festucetum rupicolae* und *Agrostio-Dianthetum deltoidis* kommen auch in Südtirol vor, doch lagen uns zu den Aufnahmen keine Koordinaten vor.

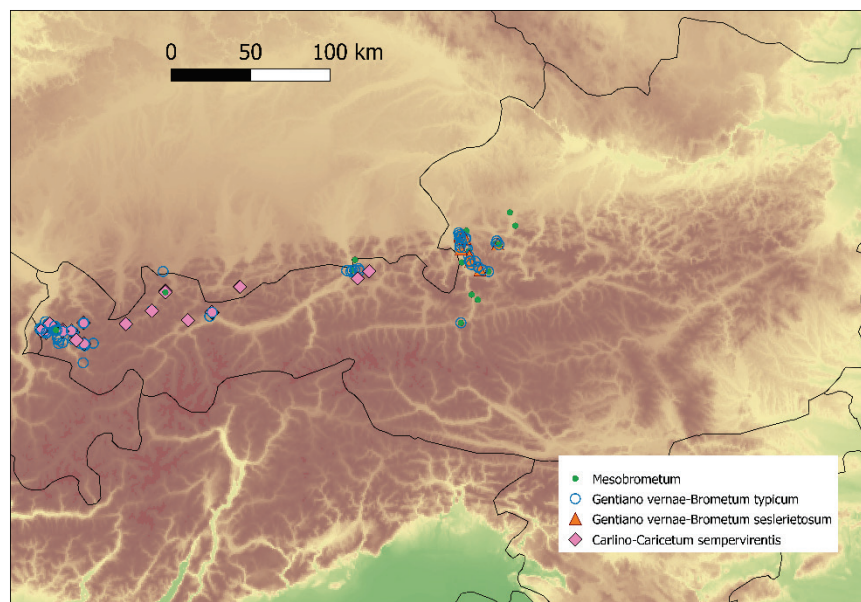


Fig. 7. Distribution of *Mesobromion* communities in the Eastern Alps.

Abb. 7. Verbreitung der *Mesobromion*-Gesellschaften in den Ostalpen.

(4.4) *Festuco rupicolae-Brometum*

Semi-dry grasslands of eastern Central Europe on more mesic and relatively nutrient-rich sites. In the study area, this association can be found in the northeastern Alps. In Willner et al. (2013), this community was described under the name *Filipendulo vulgaris-Brometum*. Most of the sites are probably degraded versions of the *Euphorbio verrucosae-Caricetum montanae* where the differential species of the latter association have disappeared due to management intensification. The main distribution of the *Festuco rupicolae-Brometum* lies outside the Alps (Willner et al. 2019).

(4.5) *Euphorbio verrucosae-Caricetum montanae*

Semi-dry grasslands of the northeastern Alps on loamy soils. This association is a geographical vicariant of the extremely species-rich Carpathian grasslands (Willner et al. 2019). Its distribution range lies between the Traun valley in Upper Austria in the west and the Vienna Basin in the east. It is probably the most species-rich grassland type of Austria (Karrer 1985, Pils 1994). The main graminoids are *Bromus erectus*, *Carex montana*, *Brachypodium pinnatum* and *Festuca rupicola*. Differential species against the *Festuco rupicolae-Brometum* are *Allium carinatum*, *Astrantia major*, *Betonica officinalis*, *Carex montana*, *Cirsium pannonicum*, *Galium boreale*, *G. pumilum*, *Euphorbia verrucosa*, *Potentilla alba* and *P. erecta*. Differential species against the similar *Gentiano verna-Brometum* are *Festuca rupicola*, *Cirsium pannonicum* and *Knautia drymeia*, which are, at the same time, differential species of the *Cirsio-Brachypodium* against the *Mesobromion* (Willner et al. 2019).

In the western part of the distribution range of this association (mainly in Upper Austria), a variant with high portion of *Seslerietalia* species can be found. We consider it as a new subassociation *Euphorbio verrucosae-Caricetum montanae seslerietosum caeruleae*. Differential species against the typical subassociation are *Sesleria caerulea*, *Molinia caerulea* agg., *Aquilegia vulgaris* agg., *Betonica alopecuros*, *Carduus defloratus*, *Carex ornithopoda*, *Cirsium erisithales*, *Crepis alpestris*, *Festuca amethystina*, *Hippocrepis comosa*, *Laserpitium latifolium*, *Linum viscosum* and *Narcissus radiiflorus*. Essl (1998) provided a detailed description of these grasslands (under the name “*Onobrychido viciifoliae-Brometum*”).

(4.6) *Carex alba-Bromus erectus* community

This grassland type, also briefly mentioned by Willner et al. (2019), is probably a strange variant of the *Euphorbio verrucosae-Caricetum montanae*. It is only known from a single locality in Upper Austria. The dominant species are *Bromus erectus*, *Brachypodium pinnatum*, *Carex alba*, *Calamagrostis varia* and *Cirsium pannonicum*. For the time being, we maintain it as a provisional rankless community.

(5) *Mesobromion*

(5.1) *Mesobrometum erecti*

Semi-dry grasslands in the lowlands of western Central Europe. This association is the western vicariant of the *Festuco rupicolae-Brometum*, where *Festuca rupicola* is replaced by *F. guestfalica* (Willner et al. 2019). In the study area, it is a rare community, and like in the case of the *Festuco rupicolae-Brometum*, most sites could be interpreted as degraded variants of the following association.

(5.2) *Gentiano verna*-*Brometum*

Semi-dry grasslands of the northwestern outer Alps and the German Jura mountains (from where this association was originally described). The *Gentiano verna*-*Brometum* replaces the *Euphorbio verrucosae-Caricetum montanae* from Salzburg westwards and can therefore be seen as its geographical vicariant. Differential species against the *Mesobrometum* are *Allium carinatum*, *Astrantia major*, *Buphthalmum salicifolium*, *Crepis alpestris*, *Gentiana verna*, *Gymnadenia odoratissima*, *Knautia maxima*, *Muscari botryoides*, *Phyteuma orbiculare*, *Polygala chamaebuxus* and *Rhinanthus glacialis* (Willner et al. 2019).

Similar grasslands with high abundance of *Sesleria caerulea* have been described under the name *Koelerio-Seslerietum* (Oberdorfer 1957, Oberdorfer & Korneck 1978). However, as the table in Oberdorfer & Korneck (1978) clearly shows, there are very few floristic differences. Therefore, and in analogy to the *Euphorbio verrucosae-Caricetum montanae*, we suggest to consider this unit only as a subassociation *Gentiano verna*-*Brometum seslerietosum caeruleae*. Additional differential species against the typical subassociation might be *Calamagrostis varia*, *Molinia caerulea* agg., *Carduus defloratus* and *Carex ornithopoda*. In the study area, this subassociation is quite rare and only documented from Salzburg.

(5.3) *Carlino-Caricetum sempervirentis*

As a transitional unit towards alpine grasslands, the *Carlino-Caricetum sempervirentis* occurs, on average, in higher elevations than the previous association, mostly between 1000 m and 1300 m. Besides the locus classicus near Mittenwald in Bavaria (Lutz & Paul 1947), we identified this association in Vorarlberg and North Tyrol. Differential species are *Carex sempervirens*, *Antennaria dioica*, *Gentiana clusii*, *Hieracium hoppeanum*, *Persicaria vivipara*, *Primula farinosa*, *Selaginella selaginoides* and *Tofieldia calyculata*.

5.3 EU habitat types and conservation status of the inner alpine dry grasslands

In the original version of the habitat directive, all dry and semi-dry grasslands of the *Festuco-Brometea* were included in a single habitat type 6210 [“Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)”]. However, in the course of subsequent amendments several new habitat types for dry grasslands were introduced to account for their huge diversity and high conservation value. Therefore, the *Festucion valesiacae* now corresponds to EU habitat types 6240, 6250 and (partly) 6260 (Ellmauer 2005, Ellmauer et al. 2020), while the *Stipo-Festucetalia pallentis* are accommodated within habitat type 6190 (DG Environment 2013). In the study area, which belongs entirely to the Alpine Biogeographical Region, habitat type 6260 [“Pannonic sand steppes”] is absent and habitat type 6250 [“Pannonic loess steppic grasslands”] occurs only at a single location south of Vienna. Habitat type 6240 [“Sub-pannonic steppic grasslands”] is recorded from the eastern margin of the Alps (Ellmauer et al. 2020) and South Tyrol (Lasen & Wilhelm 2004). In western Austria, the inner alpine xeric grasslands are accommodated in habitat type 6210, despite being rocky grasslands. However, for consistency with the interpretation in other regions, habitat type 6210 should be restricted to semi-dry grasslands (order *Brachypodietalia pinnati*) within the whole distribution area of the orders *Festucetalia valesiacae* and *Stipo-Festucetalia pallentis*. The fact that the order *Festucetalia valesiacae* is still mentioned in the definition of habitat type 6210 (DG Environment 2013) is no contradiction to this statement because the definition obviously follows the old concept of geographical orders, where the *Cirsio-Brachypodion* belongs to the *Festucetalia valesiacae*.



Fig. 8. Threats (a–c) and conservation measures (d) for inner alpine dry grasslands: **a)** a locality where Braun-Blanquet made one of his relevés; **b)** motorway at a site described by Holzner et al. (1986) as “one of the most beautiful dry grasslands of Tyrol”; **c)** last remnants of an abandoned grassland described by Holzner et al. (1986) as “nice example of the inner alpine dry vegetation”; **d)** grazing by geese helps to maintain the species rich grasslands (Kauns, North Tyrol) (Photos: W. Willner, a–c July 2022, d July 2018).

Abb. 8. Gefährdung (a–c) und Schutz (d) der inneralpinen Trockenrasen: **a)** wo Braun-Blanquet noch eine Vegetationsaufnahme machte, erstreckt sich jetzt nur noch ein Steinbruch; **b)** nach Holzner et al. (1986) lag hier „einer der schönsten Trockenrasen Tirols“; **c)** letzte Überreste eines von Holzner et al. (1986) als „schönes Beispiel für die inneralpine Trockenvegetation“ beschriebenen Rasens; **d)** Ziegenbeweidung hilft, die artenreichen Trockenrasen zu bewahren (Kauns, Nordtirol) (Fotos: W. Willner, a–c Juli 2022, d Juli 2018).

Thus, all rocky grasslands of the Eastern Alps should be assigned to habitat type 6190 [“Rupicolous pannonic grasslands (*Stipo-Festucetalia pallentis*)”]. It might be strange, at first glance, that this habitat type occurs outside the Pannonic region. However, the term “pannonic” has basically the meaning “containing steppic elements with pannonic-pontic distribution”, which is synonymous to belonging to the *Festucetalia valesiaca* s.l. or the *Stipo-Festucetalia pallentis*. Indeed, Lasen & Wilhalm (2004) assigned the steppes of the Vinschgau to habitat type 6240, despite the term “sub-pannonic” being part of its official name. However, while this assignment might be justified for the grass steppe association *Festuco valesiacae-Caricetum supinae*, the more suitable habitat type for the rocky grasslands of the inner Alps is 6190. The only exception are the serpentine grasslands of Styria (*Armerio-Potentilletum arenariae*), which have been placed in habitat type 6130 [“Calaminarian grasslands of the *Violetalia calaminariae*”] for more than two decades

(Ellmauer 2005). In conclusion, we propose that all associations of the *Stipo-Poion xerophilae* and *Seslerio-Festucion pallentis* should be placed in habitat type 6190, except for the *Festuco valesiacaе-Caricetum supinae* (6240) and the *Armerio-Potentilletum arenariae* (6130).

A comparison of the current extent and conservation state of habitat type 6190 in Austria with the descriptions in Holzner et al. (1986) indicate that both area and state have significantly decreased in the last decades due to direct destruction (road building, urbanisation, quarries), eutrophication and succession after abandonment (Fig. 8). Similar trends have been found for the Vinschgau (Kindermann et al. 2023, 2024). Therefore, urgent actions are needed to preserve the remaining dry grasslands of the inner Alps.

6. Conclusions

We provide a revised classification of the dry and semi-dry grasslands of the Eastern Alps based on the numerical classification of a large plot dataset. Within rocky grasslands, two geographically vicariant alliances are distinguished: *Stipo-Poion xerophilae* in the west and *Seslerio-Festucion pallentis* in the east. Grass steppes were not reproduced as a separate unit in our TWINSPAN classification. Therefore, we refrain from splitting the western alliance into a rocky steppe (*Diplachnion serotinae*) and a grass steppe (*Stipo-Poion xerophilae* s. str.) alliance or merging the latter with the *Festucion valesiacaе*, as the delimitation of the orders can only be resolved in a pan-European revision of the class. However, our results strongly suggest a revision of the current assignment of the inner alpine xeric grasslands to EU habitat types. We believe that our revised association system will help future inventories and monitoring projects and thus contribute to the conservation and sensible management of these unique and species-rich habitats.

Appendix: Typifications and nomenclatural novelties

Holotypes of names published after 01.01.1979 are not listed.

(1.1) *Diplachno-Festucetum valesiacaе* Br.-Bl. 1961

Typus: Braun-Blanquet (1961), Table 45: 6 (lectotypus hoc loco).

(1.2) *Bothriochloa ischaemi-Diplachnetum* Br.-Bl. 1961 nom. mut. nov.

Original form of the name (Braun-Blanquet 1961: 232): ‘*Ischaemo-Diplachnetum*’ (recte: *Andropogono ischaemi-Diplachnetum*); name-giving taxa: *Andropogon ischaemum* L. [≡ *Bothriochloa ischaemum* (L.) Keng], *Diplachne serotina* (L.) Link; authoritative taxonomic treatments that use the name *Bothriochloa ischaemum*: Ehrendorfer (1973), Fischer et al. (2008).

Typus: Braun-Blanquet (1961), Table 55: 1 (lectotypus hoc loco).

(1.3) *Seselio levigati-Stipetum capillatae* Br.-Bl. 1936 nom. invers.

Original form of the name (Braun-Blanquet 1936: 183): ‘*Stipa capillata-Seseli levigatum*-Assoziation (*Stipeto-Seselietum levigatae*)’; name-giving taxa: *Stipa capillata* L., ‘*Seseli varium* ssp. *levigatum* (Kern.)’ [≡ *Seseli levigatum* A. Kern. ≡ *Seseli levigatum* A. Kern. ex Dalla Torre & Sarnth.]

Typus: Braun-Blanquet (1936), Table 2: 1 (lectotypus hoc loco).

(1.4) *Festuco valesiacae-Caricetum supinae* Br.-Bl. 1936

Original form of the name (Braun-Blanquet 1936: 176): ‘*Festuca valesiaca-Carex supina* Assoziation (*Festuceto-Caricetum supinae*)’

Typus: Braun-Blanquet (1936), Table 1: 1 (lectotypus hoc loco).

(1.5) *Poo xerophilae-Festucetum valesiacae-* Br.-Bl. 1936

Original form of the name (Braun-Blanquet 1936: 184): ‘*Poa xerophila-Festuca valesiaca*-Assoziation’ (alternative form used in the text and table: ‘*Festuceto-Poetum xerophilae*’); name-giving taxa: *Poa alpina* subsp. *xerophila* Braun-Blanq., *Festuca valesiaca* Gaudin

Typus: Braun-Blanquet (1936), Table 3: 3 (lectotypus hoc loco).

(1.6) *Petrorhagio saxifragae-Artemisietum campestris* Br.-Bl. 1961 nom. mut. nov.

Original form of the name (Braun-Blanquet 1961: 210): ‘*Tuniceto-Artemisietum campestris*’ (recte: *Tunico saxifragae-Artemisietum campestris*); name-giving taxa: *Tunica saxifraga* (L.) Scop. [= *Petrorhagia saxifraga* (L.) Link], *Artemisia campestris* L.; authoritative taxonomic treatments that use the name *Petrorhagia saxifraga*: Ehrendorfer (1973), Fischer et al. (2008).

Typus: not yet selected

(1.7) *Astragalo onobrychidis-Brometum* Br.-Bl. 1950

Typus: Braun-Blanquet (1918), p. 14–15, rel. of ‘*Xero-Brometum erecti*’ (lectotypus Terzi et al. 2017: 306)

Syntax. syn.: *Teucrio-Caricetum humilis* Br.-Bl. 1961

Typus: Braun-Blanquet (1961), Table 44: 2 (lectotypus hoc loco).

(1.11) *Koelerio-Poetum xerophilae* Br.-Bl. 1961

Typus: Braun-Blanquet (1961), Table 42: 1 (lectotypus hoc loco).

(2.1) *Armerio-Potentilletum arenariae* Br.-Bl. 1961

Typus: Braun-Blanquet (1961), p. 253, rel. III (lectotypus Mucina & Kolbek 1993: 480)

(2.2) *Seselietum austriaci* Br.-Bl. 1961

Typus: Braun-Blanquet (1961), Table 58: 1 (lectotypus hoc loco).

(2.3) *Pulsatillo nigricantis-Phleetum phleoidis* Br.-Bl. 1961 nom. invers.

Original form of the name (Braun-Blanquet 1961: 251): ‘*Phleeto-Pulsatilletum nigricantis*’

Typus: Braun-Blanquet (1961), Table 59: 6 (lectotypus hoc loco).

Pulsatillo nigricantis-Phleetum phleoidis seslerietosum caeruleae subass. nov. hoc loco

Holotypus: W. Willner, 28 July 2022, Minachberg SE Friesach, Carinthia, Austria (14.43310°E, 46.94955°N), plot size: 16 m², elevation: 720 m a.s.l., exposition: south, slope: 35°, cover herb layer: 60%, cover moss layer: 20%, cover bare rock: 10%, Turboveg ID: 376017. Herb layer: *Carex humilis* 2b, *Sesleria caerulea* 2b, *Cytisus nigricans* 2a, *Salvia pratensis* 2a, *Teucrium chamaedrys* 2a, *Anthericum ramosum* 1, *Brachypodium rupestre* 1, *Buphthalmum salicifolium* 1, *Galium lucidum* 1, *Knautia norica* 1, *Centaurea scabiosa* +, *Corylus avellana* +, *Stachys recta* +, *Thymus pulegioides* +, *Euphorbia cyparissias* +, *Frangula alnus* +, *Polygala chamaebuxus* +, *Polygonatum odoratum* +, *Juglans regia* r, *Quercus* sp. r, *Viola collina* r. Moss layer: *Rhytidium rugosum* 2b.

(2.6) *Fumano-Stipetum eriocalis* Wagner 1941 mut. Zólyomi 1966

Typus: Wagner (1941), Table 1: 6 (lectotypus Mucina & Kolbek 1993: 462).

(4.1) *Potentillo pusillae-Festucetum rupicolae* Br.-Bl. 1961 nom. corr.

Original form of the name (Braun-Blanquet 1961: 246): ‘*Potentillete-Festucetum sulcatae*’

Typus: Braun-Blanquet (1961), Table 57: 6 (lectotypus hoc loco).

(4.2) *Agrostio-Dianthetum deltoidis* Br.-Bl. 1976

Typus: not yet selected

(4.3) *Polygalo majoris-Brachypodietum* Wagner 1941

Typus: Wagner (1941), Table 3: 3 (lectotypus Willner et al. 2013: 435).

(4.4) *Festuco rupicolae-Brometum* Zielonkowski 1973

Typus: not yet selected

(4.5) *Euphorbio verrucosae-Caricetum montanae* Karrer 1985

Euphorbio verrucosae-Caricetum montanae seslerietosum caeruleae subass. nov. hoc loco

Holotypus: Essl (1998), Table p. 223–231, rel. 56.

(5.1) *Mesobrometum erecti* Scherrer ex Koch 1926

Typus: Scherrer (1925), table p. 62–63, rel. 10 (lectotypus Terzi et al. 2016: 313)

(5.2) *Gentiano vernaе-Brometum* Kuhn ex Oberd. 1957

Typus: Kuhn (1937), Table 19: 9 (lectotypus hoc loco).

Gentiano vernaе-Brometum seslerietosum caeruleae (Kuhn ex Br.-Bl. et Moor 1938) comb. nov. hoc loco

Basionym: *Mesobrometum seslerietosum caeruleae* Kuhn ex Br.-Bl. et Moor 1938 [Braun-Blanquet & Moor 1938: 44].

Typus: Kuhn (1937), Table 17: 8 (neotypus hoc loco).

The same relevé (Kuhn 1937, Table 17: 8) is chosen here as type (lectotypus hoc loco) of the ‘*Seslerio-Koelerietum*’ described by Oberdorfer (1957: 295) (recte: *Koelerio pyramidatae-Seslerietum caeruleae* Oberd. 1957 nom. invers.). Both Oberdorfer’s and Braun-Blanquet & Moor’s name are based on the invalidly published ‘*Sesleria-Mesobrometum*’ of Kuhn (1937), which is a subunit (subassociation?) of the association *Mesobrometum erecti* (Art. 3e).

(5.3) *Carlino acaulis-Caricetum sempervirentis* Lutz et Paul 1947

Typus: Lutz & Paul (1947), Table VII: 19 (lectotypus hoc loco).

Erweiterte deutsche Zusammenfassung

Einleitung – Trockenrasen finden sich in den Ostalpen hauptsächlich in zwei Teilgebieten: am pannonisch geprägten Alpenostrand (Wagner 1941, Niklfeld 1964, Willner et al. 2013) und in den inneralpinen Trockentälern (Braun-Blanquet 1936, 1961, Magnes et al. 2021, Bergauer et al. 2022). Braun-Blanquet (1961) unterschied vier geographische Verbände von inneralpinen Trockenrasen: *Stipo-Poion carniolicae* in den inneren Westalpen, *Stipo-Poion xerophilae* in den inneren Ostalpen, *Xero-Bromion* im Einzugsgebiet des Rheins und *Diplachnion* im Nahbereich des südlichen

Alpenrands. Mit Ausnahme des *Xero-Bromions* gliederte Braun-Blanquet (1961) diese Verbände in die Ordnung *Festucetalia valesiaca* ein. Innerhalb der Verbände beschrieb er für jedes Talsystem mehrere regionale Assoziationen, welche die standörtlichen Unterschiede innerhalb der Regionen widerspiegelten. Spätere Autoren (z. B. Braun-Blanquet 1976, Franz 1987, 1989) beschrieben weitere Assoziationen aus den Ostalpen. Mucina & Kolbek (1993) überstellten die Trockenrasen von Osttirol, Kärnten und Steiermark in andere Verbände (*Festucion valesiaca*, *Diantho-Seslerion*, *Avenulo adsurgentis-Festucion pallentis*), von welchen die beiden letzteren der Ordnung *Stipo-Festucetalia pallentis* zugeordnet wurden. Magnes et al. (2021) unterschieden für die inneralpinen Trockenrasen Österreichs die Ordnungen *Stipo-Festucetalia pallentis*, *Festucetalia valesiaca* und *Brachypodietalia pinnati*. Eine kritische Revision der Trockenvegetation der gesamten Ostalpen stand allerdings bislang aus. Unklarheiten gibt es auch in der Zuordnung der inneralpinen Trockenrasen zu FFH-Lebensraumtypen (LRT). So werden sämtliche Trockenrasen in Südtirol (Italien) zum LRT 6240 [Subpannonische Steppen-Trockenrasen] gestellt (Lasen & Wilhalm 2004), während sie in Nord- und Osttirol (Österreich) dem LRT 6210 [Naturnahe Kalk-Trockenrasen und deren Verbuschungsstadien (*Festuco-Brometalia*)] zugeordnet werden. Für Kärnten und Steiermark zeigen offizielle Karten außerdem verstreute Vorkommen des LRT 6190 [Lückiges pannonisches Grasland (*Stipo-Festucetalia pallentis*)]. Mit dieser Studie legen wir eine revidierte syntaxonomische Klassifikation der Trocken- und Halbtrockenrasen der Ostalpen unter Einschluss der nördlichen Randalpen und des niederösterreichischen Alpenostrands vor, wobei der Fokus auf den Assoziationen und Verbänden liegt. Außerdem schlagen wir eine verbesserte, konsistente Zuordnung aller Syntaxa zu FFH-Lebensraumtypen vor.

Untersuchungsgebiet – Die Ostalpen umfassen die östliche Hälfte des Alpenbogens, wobei die Grenze zu den Westalpen der Linie Rheintal – Splügenpass – Comosee folgt (Grassler 1984). Geologisch lassen sich die Ostalpen grob in Nördliche Kalkalpen, Zentrale Ostalpen (in Österreich meist kurz „Zentralalpen“ genannt) und Südliche Kalkalpen untergliedern (Fink 1993). Das Klima ist in den nördlichen und südlichen Randalpen humid mit 1000–1800 mm Jahresniederschlag (in der alpinen Stufe 2000–3000 mm), während die inneren Alpentäler mit nur 600–800 mm Jahresniederschlag und sehr kalten Wintern ein ausgeprägt kontinentales Klima aufweisen. Ähnliche Niederschlagswerte, aber mildere Winter charakterisieren den Alpenostrand.

Material und Methoden – Unser Datensatz umfasst 2924 Vegetationsaufnahmen von Trocken- und Halbtrockenrasen, davon 2316 aus Österreich, 475 aus Italien, 115 aus der Schweiz und 18 aus Deutschland (Abb. 1). Die Taxonomie der Arten folgt Fischer et al. (2008). Moose und Flechten wurden exkludiert, da sie nur in einem kleinen Teil der Aufnahmen erfasst waren. Alle Aufnahmen sind in der Österreichischen Vegetationsdatenbank gespeichert (EU-AT-001; Willner et al. 2012). Der gesamte Datensatz wurde mit TWINSPAN (Hill 1979) klassifiziert (cutlevels 0 %, 5 %, 25 %). Nach einer provisorischen syntaxonomischen Interpretation der 64 TWINSPAN-Gruppen wurden die auf Ordnungs- bzw. Verbandsniveau missklassifizierten Aufnahmen händisch umsortiert, wobei die hierarchische Deckungssummen-Methode nach Willner (2011) angewandt wurde. Aus den unten genannten Gründen erwiesen sich allerdings die in der Literatur genannten diagnostischen Arten der *Festucetalia valesiaca* (Mucina & Kolbek 1993, Willner et al. 2017) in den inneralpinen Rasen als nicht anwendbar, sodass wir letztlich nur zwischen *Festucetalia valesiaca*/*Stipo-Festucetalia pallentis* (echte Trockenrasen) einerseits und *Brachypodietalia pinnati* (Halbtrockenrasen) andererseits unterschieden. Die Abgrenzung der Assoziationen erfolgte in der gleichen Weise wie in Willner et al. (2019). Als diagnostisch wurden nur solche Arten akzeptiert, welche aufgrund ihrer ökologischen Ansprüche oder ihrer Verbreitung für den jeweiligen standörtlichen oder geographischen Gradienten tatsächlich aussagekräftig waren. Für die Halbtrockenrasen-Gesellschaften der nördlichen Randalpen wurden die formalen Definitionen aus Willner et al. (2019) unverändert übernommen.

Ergebnisse – Die echten Trockenrasen wurden von den Halbtrockenrasen in der ersten TWINSPAN-Teilung getrennt (Anhang E1). Innerhalb der echten Trockenrasen zeigte sich ein dominanter West-Ost-Gradient, wobei im Wesentlichen die Trockenrasen Tirols und angrenzender Gebiete von

jenen in Ost-Kärnten, Steiermark und Niederösterreich getrennt wurden. Die Cluster 1–4 umfassten die Trockenrasen des Vinschgaus (Südtirol), die Cluster 25–30 jene des Alpenostrands (Niederösterreich). Die übrigen Trockenrasen der Ostalpen waren entsprechend dazwischen verteilt, wobei die vier *Diplachnion*-Gesellschaften Braun-Blanquets selbst auf dem sechsten Teilungsniveau in ein und demselben Cluster zu liegen kamen. Innerhalb der Halbtrockenrasen wurden zunächst die trockeneren von den mehr mesischen Typen getrennt, gefolgt von einer wiederum hauptsächlich geographischen Auftrennung innerhalb dieser beiden Haupttypen.

Diskussion – Die Ordnung der Halbtrockenrasen (*Brachypodietalia pinnati*) ist in den Ostalpen floristisch gut definiert und besitzt eine Vielzahl von Charakter- und Differentialarten (Beilage S1). Wesentlich problematischer stellt sich in den Innenalpen die Trennung der Ordnungen *Festucetalia valesiaca* (Rasensteppen) und *Stipo-Festucetalia pallentis* (Felsensteppen) dar. Physiognomisch entsprechen die inneralpinen Trockenrasen meist typischen Felssteppen (Abb. 2 und 3). Die für das östliche Mitteleuropa erarbeiteten diagnostischen Arten der *Festucetalia valesiaca* und *Stipo-Festucetalia pallentis* (Mucina & Kolbek 1993, Willner et al. 2017) schließen sich allerdings in den Innenalpen nicht gegenseitig aus, sondern sind in den meisten Aufnahmen gemeinsam und oft in ähnlichen Mengenverhältnissen vorhanden (vgl. auch Magnes et al. 2021). Zahlreiche *Stipo-Festucetalia pallentis*-Arten fehlen im Kernareal des *Stipo-Poion xerophilae*, wobei sie oft durch nah verwandte oder ökologisch analoge Taxa ersetzt werden (z. B. *Dianthus plumarius* durch *D. sylvestris*, *Erysimum sylvestre* durch *E. rhaeticum*, *Jovibarba globifera* durch *Sempervivum arachnoideum* und *S. tectorum*, *Pulsatilla grandis* und *P. pratensis* subsp. *nigricans* durch *P. montana*). Eine Aufteilung der *Stipo-Poion*-Gesellschaften auf zwei Ordnungen (und somit auf zwei Verbände) wird also durch unsere Ergebnisse nicht gestützt und daher nicht durchgeführt. Wir stellen deshalb die Verbände der echten Trockenrasen der Ostalpen vorläufig in eine weit gefasste Ordnung *Festucetalia valesiaca* s.l., was aber nicht bedeutet, dass wir hier die Aufgabe der *Stipo-Festucetalia pallentis* vorschlagen. Die Ordnungsgliederung der *Festuco-Brometea* kann letztlich nur durch eine pan-europäische Revision geklärt werden.

Der geographische West-Ost-Gradient der TWINSPAN-Klassifikation kann dagegen zwanglos mit den Verbänden *Stipo-Poion xerophilae* und *Seslerio-Festucion pallentis* parallelisiert werden. Das *Diplachnion* wird von uns entsprechend dem TWINSPAN-Ergebnis in das *Stipo-Poion xerophilae* integriert. Die Grenze zwischen westlichem *Stipo-Poion xerophilae* und östlichem *Seslerio-Festucion pallentis* verläuft in etwa auf Höhe des Wörthersees in Kärnten. Die Trennung der beiden Verbände ist floristisch gut begründet und auch historisch-biogeographisch signifikant: Die *Stipo-Poion*-Arten haben die Eiszeiten wohl am Alpensüdrand überdauert, während die *Seslerio-Festucion*-Arten entweder am Alpenostrand oder in den unvergletscherten Tälern Ost-Kärntens und der Steiermark überdauert haben (vgl. Kirschner et al. 2020).

Die aus dem Gebiet beschriebenen Assoziationen wurden großteils durch die TWINSPAN-Klassifikation bestätigt (Anhang E2). Einige Gesellschaften mussten aufgrund ihrer schwachen floristischen Differenzierung eingezogen werden. Für Details sei auf den englischen Text verwiesen. Eine Übersicht aller Syntaxa wird in Abschnitt 5.1.3 gegeben. Die gekürzte Stetigkeitstabelle ist in Beilage S1 zu finden, die vollständige Version in Anhang E3. Die Herkunft der Aufnahmen ist dem Anhang E4 zu entnehmen. Fotos ausgewählter Gesellschaften sind in Abbildung 2 und 3 wieder gegeben, und die geographische Verbreitung der Assoziationen in Abbildung 4–7.

Naturschutz – Unsere Revision ermöglicht eine bessere Fassung der FFH-Lebensraumtypen (LRT) in den Ostalpen. In der aktuellen Fassung der FFH-Richtlinie entspricht das *Festucion valesiaca* den LRT 6240, 6250 und 6260 (Ellmauer 2005, Ellmauer et al. 2020) und die *Stipo-Festucetalia pallentis* dem LRT 6190 (DG Environment 2013). Der LRT 6260 [Pannonische Steppen auf Sand] fehlt in den Ostalpen und der LRT 6250 [Pannonischer Steppen-Trockenrasen auf Löss] kommt nur an einer Lokalität südlich von Wien vor. Der LRT 6240 [Subpannonische Steppen-Trockenrasen] wird vom Alpenostrand (Ellmauer et al. 2020) und aus Südtirol (Lasen & Wilhalm 2004) angegeben. Die inneralpinen Trockenrasen Österreichs werden derzeit großteils dem LRT 6210 zugeordnet. Aus Konsistenzgründen sollte der LRT 6210 allerdings im Verbreitungsgebiet der Ordnungen *Festucetalia*

valesiaca und *Stipo-Festucetalia pallentis* auf Halbtrockenrasen (*Brachypodietalia pinnati*) beschränkt bleiben. Eine Zuordnung zum LRT 6240 scheint allenfalls für die Rasensteppen des Vinschgaus (*Festuco valesiaca*-*Caricetum supinae*) gerechtfertigt. Wir schlagen deshalb vor, die inneralpinen Felstrockenrasen Österreichs (d.h. alle österreichischen Assoziationen der Verbände *Stipo-Poion xerophilae* und *Seslerio-Festucion pallentis*) zum LRT 6190 zu stellen. Die einzige Ausnahme sind die Serpentinrasen der Steiermark (*Armerio-Potentilletum arenariae*), welche aus unserer Sicht entsprechend der derzeitigen Zuordnung (Ellmauer 2005), und trotz naheliegender syntaxonomischer Bedenken, beim LRT 6130 [Schwermetallrasen (*Violion calaminariae*)] verbleiben können.

Ein Vergleich des Zustands der inneralpinen Trockenrasen Österreichs mit den Beschreibungen in Holzner et al. (1986) zeigt, dass sowohl Fläche als auch Habitatqualität stark abgenommen haben. Verantwortlich sind einerseits direkte Zerstörung durch Straßenbau, Siedlungserweiterungen und Steinbrüche, andererseits Eutrophierung und Verbuschung nach Aufgabe der Beweidung (Abb. 8). Ähnliche Trends sind auch für den Vinschgau dokumentiert (Kindermann et al. 2023, 2024). Es sind daher dringend Maßnahmen erforderlich, um die letzten verbliebenen Trockenrasen der Ostalpen zu bewahren. Wir hoffen, mit unserer pflanzensoziologischen Revision eine verbesserte Grundlage für Kartierungen und Monitoring-Programme geliefert und so zum Erhalt dieser einzigartigen und diversen Lebensräume beigetragen zu haben.


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Author contribution statement

W.W. conceived the idea of the study and led the data analysis and writing. G.K. contributed with field work and data handling, W.R.F. provided unpublished relevés and assisted during field work, T.E. and D.M. provided unpublished data from the Austrian habitat monitoring. All co-authors contributed to the writing and revised the manuscript.

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Supplements

Supplement S1. Shortened synoptic table.

Beilage S1. Gekürzte synoptische Tabelle.

Additional supporting information may be found in the online version of this article.

Zusätzliche unterstützende Information ist in der Online-Version dieses Artikels zu finden.

Supplement E1. TWINSpan table.

Anhang E1. TWINSpan-Tabelle.

Supplement E2. Comparison of TWINSpan clusters and final (supervised) classification.

Anhang E2. Vergleich von TWINSpan-Ergebnis und finaler Klassifikation.

Supplement E3 Synoptic table (full version).

Anhang E3. Synoptische Tabelle (ungekürzte Version).

Supplement E4. Data sources.

Anhang E4. Herkunft der Aufnahmen.

References

- Arndt, S. (2008): Novelty in the *Festuca valesiaca* group (*Poaceae*) from the central Alps. – Plant Syst. Evol. 271: 129–142. <https://doi.org/10.1007/s00606-007-0588-0>
- Bergauer, M., Dembicz, I., Boch, S. ... Dengler J. (2022): Scale-dependent patterns and drivers of vascular plant, bryophyte and lichen diversity in dry grasslands of the Swiss inneralpine valleys. – Alp. Bot. 132: 195–209. <https://doi.org/10.1007/s00035-022-00285-y>
- Braun-Blanquet, J. (1918): Eine pflanzengeographische Exkursion durchs Unterengadin und in den schweizerischen Nationalpark. – Beitr. Geobot. Landesaufnahme Schweiz 4: 1–80.
- Braun-Blanquet, J. (1936): Über die Trockenrasengesellschaften des *Festucion valesiacae* in den Ostalpen. – Ber. Schweiz. Bot. Ges. 46: 169–189.
- Braun-Blanquet, J. (1949): Übersicht der Pflanzengesellschaften Rätians (III). – Vegetatio 1: 285–316.
- Braun-Blanquet, J. (1961): Die inneralpine Trockenvegetation von der Provence bis zur Steiermark. – Fischer, Stuttgart: 273 pp.
- Braun-Blanquet, J. (1976): Fragmenta Phytosociologica Rhaetica III, IV und VII. – Veröff. Geobot. Inst. ETH, Stiftung Rübel, Zürich 58: 1–44.
- Braun-Blanquet, J. & Moor, M. (1938): Prodromus der Pflanzengesellschaften, Fasz. 5. Verband des *Bromion erecti*. – Comité International du Prodrome Phytosociologique, Montpellier: 64 pp.
- Braun-Blanquet, J. & Tüxen, R. (1943): Übersicht der höheren Vegetationseinheiten Mitteleuropas (unter Ausschluss der Hochgebirge). – Comm. Stat. Int. Géobot. Méditerr. Alp. Montpellier 84: 1–11.
- Dengler, J., Biurrin, I., Boch, S., Dembicz, I. & Török, P. (2020): Grasslands of the Palaearctic biogeographic realm: introduction and synthesis. – In: Goldstein, M.I., DellaSala, D.A., Di Paolo, D.A. (Eds.): Encyclopedia of the world's biomes. Vol. 3: Forests – trees of life. Grasslands and shrublands – sea of plants: 617–637. Elsevier, Amsterdam.
- Dengler, J., Widmer, S., Staubli, E. ... Dembicz, I. (2019): Dry grasslands of the central valleys of the Alps from a European perspective: the example Ausserberg (Valais, Switzerland). – Hacquetia 18: 155–177. <https://doi.org/10.2478/hacq-2019-0008>
- Dengler, J. & Willner, W. (2023): Proposal (31) to conserve the name *Brachypodietalia pinnati* Korneck 1974 as a nomen conservandum with a conserved type. – Veg. Classif. Surv. 4: 63–68. <https://doi.org/10.3897/VCS.100985>
- DG Environment (2013): Interpretation Manual of European Union Habitats – EUR28. – European Commission, DG Environment, Brussels: 144 pp.
- Dobner, M.J. (2007): Federgräser (*Stipa* L., *Poaceae*) in Nordtirol/Österreich: Beitrag zu Taxonomie, Verbreitung und Gefährdung. – Veröff. Tiroler Landesmus. Ferdinandeum 87: 5–40.
- Durović, S., Schönswetter, P., Niketić, M., Tomović, G. & Frajman, B. (2017): Disentangling relationships among the members of the *Silene saxifraga* alliance (*Caryophyllaceae*): Phylogenetic structure is geographically rather than taxonomically segregated. – Taxon 66: 343–364. <https://doi.org/10.12705/662.4>
- Eggenberg, S., Bornand, C., Juillerat, P., Jutzi, M., Möhl, A., Nyffeler, R. & Santiago, H. (2018): Flora Helvetica – Exkursionsführer. – Haupt, Bern: 813 pp.
- Ehrendorfer, F. (Ed.) (1973): Liste der Gefäßpflanzen Mitteleuropas. 2. Aufl. – Fischer, Stuttgart: 318 pp.
- Ellmayer, T. (Ed.) (2005): Entwicklung von Kriterien, Indikatoren und Schwellenwerten zur Beurteilung des Erhaltungszustandes der Natura 2000-Schutzgüter. Band 3: Lebensraumtypen des Anhangs I der Fauna-Flora-Habitat-Richtlinie. – Umweltbundesamt, Wien: 616 pp.

- Ellmauer, T., Igel, V., Kudrnovsky, H., Moser, D. & Paternoster, D. (2020): Monitoring von Lebensraumtypen und Arten von gemeinschaftlicher Bedeutung in Österreich 2016–2018 und Grundlagenerstellung für den Bericht gemäß Art. 17 der FFH-Richtlinie im Jahr 2019: Teil 3: Kartieranleitungen. Im Auftrag der österreichischen Bundesländer. – Umweltbundesamt, Wien: 475 pp.
- Essl, F. (1998): Vegetation, Vegetationsgeschichte und Landschaftswandel der Talweitung Jaidhaus bei Molln/Oberösterreich. – Stapfia 57.
- Fink, M. (1993): Geographische Gliederung und Landschaften Österreichs. – In: Mucina, L., Grabherr, G. & Ellmauer, T. (Eds.): Die Pflanzengesellschaften Österreichs, Teil I: 29–42. Fischer, Jena.
- Fischer, H.S. (2015): On the combination of species cover values from different vegetation layers. – Appl. Veg. Sci. 18: 169–170. <https://doi.org/10.1111/avsc.12130>
- Fischer, M.A., Oswald, K. & Adler, W. (2008): Exkursionsflora für Österreich, Liechtenstein und Südtirol. 3. Aufl. – Biologiezentrum der Oberösterreichischen Landesmuseen, Linz: 1392 pp.
- Florineth, F. (1974): Vegetation und Boden im Steppengebiet des oberen Vinschgaues (Südtirol: Italien). – Ber. naturwiss.-med. Ver. Innsbruck 61: 43–70.
- Franz, W.R. (1987): Eine *Stipa eriocaulis*-reiche Rasensteppe auf der Villacher Alpe (Dobratsch) in Südkärnten. – Carinthia II 177/97: 361–372.
- Franz, W.R. (1989): Zur Soziologie der xerothermen Vegetation Kärntens und des oberen Murtales (Steiermark). – In: Atti del Simposio della Società Estalpino-dinarica di fitosociologia, Feltre 29/6–3/7/1988: 63–88. Regione del Veneto, Assessorato Agricoltura e Foreste, Dipartimento Foreste, Mestre-Venezia.
- Franz, W.R., Krainer, K. & Krainer, K. (2022): Temperaturunterschiede und ihre Auswirkung auf Flora und Vegetation an unmittelbar benachbarten Standorten am Kulterer-Kogel bei Völkermarkt und an vergleichbaren Biotopen (Kärnten). – Carinthia II 212/132: 31–56.
- García-Mijangos, I., Berastegi, A., Biurrun, I. ... Dengler, J. (2021): Grasslands of Navarre (Spain), focusing on the *Festuco-Brometea*: classification, hierarchical expert system and characterisation. – Veg. Classif. Surv. 2: 195–231. <https://doi.org/10.3897/VCS/2021/69614>
- Grassler, F. (1984): Alpenvereinseinteilung der Ostalpen (AVE). – Alpenvereinsjahrbuch 108: 215–224.
- Greimler, J. & Mucina, L. (1992): Die *Festuca pallidula*-Rasen in den Nordöstlichen Kalkalpen. – Tuexenia 12: 175–192.
- Halder, C. (1991): Wiesengesellschaften in Mieders im Stubaital / Tirol. – Diplomarb. Univ. Bodenkult. Wien: 99 pp.
- Hill, M.O. (1979): TWINSpan – A FORTRAN program for arranging multivariate data in an ordered two-way table by classification of the individuals and attributes. – Cornell University, Ithaca, New York: 46 pp.
- Hölzel, N. (1996): Schneeheide-Kiefernwälder in den mittleren Nördlichen Kalkalpen. – Laufener Forschungsber. 3: 1–192.
- Holzner, W., Horvatic, E., Köllner, E., Köppl, W., Pokorny, M., Scharfetter, E., Schramayr, G. & Strudl, M. (1986): Österreichischer Trockenrasenkatalog. – Bundesministerium für Gesundheit und Umweltschutz, Wien: 312 pp.
- Karrer, G. (1985): Die Vegetation des Peilsteins, eines Kalkberges im Wienerwald, in räumlich-standörtlicher, soziologischer, morphologischer und chorologischer Sicht. – Verh. Zool.-Bot. Ges. Österreich 123: 331–414.
- Kielhauser, G.E. (1954): Die Trockenrasengesellschaften des *Stipeto-Poion xerophilae* im oberen Tiroler Inntal. – In: Janchen, E. (Ed.), Festschrift für Erwin Aichinger zum 60. Geburtstag, Vol. 1: 646–666. Springer, Wien.
- Kindermann, E., Ebner, M., Hölzel, N., Bonari, G., Wassen, M.J. & Wellstein, C. (2024): Resurveying inner-alpine dry grasslands after 70 years calls for integrative conservation efforts. – Biol. Conserv. 289: 110393. <https://doi.org/10.1016/j.biocon.2023.110393>
- Kindermann, E., Hölzel, N. & Wellstein, C. (2023): Combining historical aerial photography with machine learning to map landscape change impacts on dry grasslands in the Central Alps. – Landsc. Ecol. 38: 2121–2143. <https://doi.org/10.1007/s10980-023-01684-0>
- Kirschner, P., Závěská, E., Gamisch, A. ... Schönswetter, P. (2020): Long-term isolation of European steppe outposts boosts the biome's conservation value. – Nature Comm. 11: 1968. <https://doi.org/10.1038/s41467-020-15620-2>

- Köllemann, C. (1981): Die Trockenvegetation im Vinschgau. – Jahrb. Ver. Schutz Bergwelt 46: 127–147.
- Kuhn, K. (1937): Die Pflanzengesellschaften im Neckargebiet der Schwäbischen Alb. – Hohenlohesche Buchhandlung Ferdinand Rau, Öhringen: 340 pp.
- Lasen, C. & Wilhalm, T. (2004): Natura 2000 Lebensräume in Südtirol. – Autonome Provinz Bozen-Südtirol, Abteilung Natur und Landschaft, Bozen: 190 pp.
- Lübben, M. & Erschbamer, B. (2021): Long term changes of the inner-alpine steppe vegetation: the dry grassland communities of the Vinschgau (South Tyrol, Italy) 40–50 years after the first vegetation mapping. – Veg. Classif. Surv. 2: 117–131. <https://doi.org/10.3897/VCS/2021/65217>
- Lutz, J.L. & Paul, H. (1947): Die Buckelwiesen bei Mittenwald. – Ber. Bayer. Bot. Ges. 27: 98–138.
- Magnes, M., Willner, W., Janišová, M. ... Dembicz, I. (2021): Xeric grasslands of the inner-alpine dry valleys of Austria – new insights into syntaxonomy, diversity and ecology. – Veg. Classif. Surv. 2: 133–157. <https://doi.org/10.3897/VCS/2021/68594>
- Mucina, L., Bültmann, H., Dierßen, K. ... Tichý, L. (2016): Vegetation of Europe: Hierarchical floristic classification system of vascular plant, bryophyte, lichen, and algal communities. – Appl. Veg. Sci. 19 (Suppl. 1): 3–264. <https://doi.org/10.1111/avsc.12257>
- Mucina, L. & Kolbek, J. (1993): *Festuco-Brometea*. – In: Mucina, L., Grabherr, G. & Ellmauer, T. (Eds.): Die Pflanzengesellschaften Österreichs, Teil I: 420–492. Fischer, Jena.
- Niklfeld, H. (1964): Zur xerothermen Vegetation im Osten Niederösterreichs. – Verh. Zool.-Bot. Ges. Wien 103/104: 152–181.
- Niklfeld, H. (1979): Vegetationsmuster und Arealtypen der montanen Trockenflora in den nord-östlichen Alpen. – Stapfia 4.
- Niklfeld, H. (1993): Pflanzengeographische Charakteristik Österreichs. – In: Mucina, L., Grabherr, G. & Ellmauer, T. (Eds.): Die Pflanzengesellschaften Österreichs, Teil I: 43–75. Fischer, Jena.
- Oberdorfer, E. (1957): Süddeutsche Pflanzengesellschaften. – Fischer, Jena: 564 pp.
- Oberdorfer, E. & Korneck, D. (1978): *Festuco-Brometea*. – In: Oberdorfer, E. (Ed.): Süddeutsche Pflanzengesellschaften, 2. Aufl., Teil 2: 86–180. Fischer, Jena.
- Pedrotti, F. (1963): Nota sulla vegetazione steppica (*Stipeto-Poion xerophilae* e *Diplachnion*) dei dintorni di Trento. – Studi Trentini di Scienze Naturali 60: 288–301.
- Pignatti, S., Guarino, R. & La Rosa, M. (2017–2019): Flora d'Italia, seconda edizione. – Edagricole, Bologna.
- Pignatti, E. & Pignatti, S. (2014): Plant life of the Dolomites. Vegetation structure and ecology. – Springer, Heidelberg: 808 pp.
- Pils, G. (1994): Die Wiesen Oberösterreichs. – Naturschutzabteilung des Landes Oberösterreich, Linz: 355 pp.
- Royer, J.M. (1991): Synthèse eurosibérienne, phytosociologique et phytogéographique de la classe des *Festuco-Brometea*. – Diss. Bot. 178: 1–296.
- Schwabe, A. & Kratochwil, A. (2004): *Festucetalia valesiacae* communities and xerothermic vegetation complexes in the Central Alps related to environmental factors. – Phytocoenologia 34: 329–446.
- Smettan, H.W. (1981): Die Pflanzengesellschaften des Kaisergebirges/Tirol. – Verein zum Schutz der Bergwelt, München: 196 pp.
- Strimmer, A. (1974): Die Steppenvegetation des mittleren Vinschgaues (Südtirol: Italien). – Ber. naturwiss.-med. Ver. Innsbruck 61: 7–42.
- Terzi, M. (2015): Numerical analysis of the order *Scorzoneretalia villosae*. – Phytocoenologia 45: 11–32. <https://doi.org/10.1127/phyto/2015/0009>
- Terzi, M., Di Pietro, R. & Theurillat, J.P. (2016): Nomenclature of the class *Festuco-Brometea* in Italy and remarks on the interpretation of articles 1 and 2b ICPN. – Bot. Lett. 163: 307–319. <https://doi.org/10.1080/23818107.2016.1201692>
- Terzi, M., Di Pietro, R. & Theurillat, J.P. (2017): Proposal (21): to conserve the name *Festucetalia valesiacae* Br.-Bl. & Tx. ex Br.-Bl. 1950 against *Festucetalia* Soó 1940. – Phytocoenologia 47: 305–307. <https://doi.org/10.1127/phyto/2017/0186>
- Theurillat, J.-P., Willner, W., Fernández-González, F., Bültmann, H., Čarni, A., Gigante, D., Mucina, L. & Weber, H. (2021): International Code of Phytosociological Nomenclature. 4th ed. – Appl. Veg. Sci. 24: e12491. <https://doi.org/10.1111/avsc.12491>
- Tichý, L. (2002): JUICE, software for vegetation classification. – J. Veg. Sci. 13: 451–453.

- Untertuggauer, P. (2016): Traditionell und intensiv bewirtschaftete Wiesen in Südtirol – ihre Vegetation als Indikator für die Bewirtschaftungsintensität. – *Tuexenia* 36: 37–62.
<https://doi.org/10.14471/2016.36.007>
- Vassilev, K., Bergmeier, E., Boch, S. ... Dengler, J. (2024): Classification of the high-rank syntaxa of the Central and Eastern Balkan dry grasslands with a new hierarchical expert system approach. – *Appl. Veg. Sci.* 27: e12779. <https://doi.org/10.1111/avsc.12779>
- Wagner, H. (1941): Die Trockenrasengesellschaften am Alpenostrand. Eine Pflanzensoziologische Studie. – *Denkschr. Akad. Wiss. Wien, Math.-Nat. Kl.*, 104: 1–81.
- Willner, W. (2011): Unambiguous assignment of relevés to vegetation units: the example of the *Festuco-Brometea* and *Trifolio-Geranietea sanguinei*. – *Tuexenia* 31: 271–282.
- Willner, W. (2020): What is an alliance? – *Veg. Classif. Surv.* 1: 139–144.
<https://doi.org/10.3897/VCS/2020/56372>
- Willner, W., Berg, C. & Heiselmayer, P. (2012): Austrian Vegetation Database. – *Biodivers. Ecol.* 4: 333–333. <https://doi.org/10.7809/b-e.00125>
- Willner W., Kuzemko A., Dengler J. ... Janišová M. (2017): A higher-level classification of the Pannonian and western Pontic steppe grasslands (Central and Eastern Europe). – *Appl. Veg. Sci.* 20: 143–158. <https://doi.org/10.1111/avsc.12265>
- Willner, W., Moser, D., Plenk, K. ... Kropf, M. (2021): Long-term continuity of steppe grasslands in eastern Central Europe: Evidence from species distribution patterns and chloroplast haplotypes. – *J. Biogeogr.* 48: 3104–3117. <https://doi.org/10.1111/jbi.14269>
- Willner, W., Roleček, J., Korolyuk, A., ... Yamalov, S. (2019): Formalized classification of semi-dry grasslands in central and eastern Europe. – *Preslia* 91: 25–49.
<https://doi.org/10.23855/preslia.2019.025>
- Willner, W., Sauberer, N., Staudinger, M., Grass, V., Kraus, R., Moser, D., Rötzer, H. & Wrba, T. (2013): Syntaxonomic revision of the Pannonian grasslands of Austria – Part II: Vienna Woods (Wienerwald). – *Tuexenia* 33: 421–458.
- Wilson, J.B., Peet, R.K., Dengler, J. & Pärtel, M. (2012): Plant species richness: the world records. – *J. Veg. Sci.* 23: 796–802. <https://doi.org/10.1111/j.1654-1103.2012.01400.x>

Column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	22a	22b	23	24	25	26	27	28	29	30	31	31a	32	33	34	35		
Carduus defloratus s.lat.	.	.	1	.	.	.	.	.	6	.	.	.	26	35	4	.	4	67	29	5	11	.	.	.	15	23	3	11	4	1	2	5	65	17	.	4	67	36
Leontodon incanus	23	32	21	.	2	.	29	4	63	40	47	54	54	.	22	.	.	3	1	3	1	2	1	.	11	.	3	1	.	17			
Globularia cordifolia	.	13	.	.	.	.	15	79	14	.	.	.	17	.	2	.	.	73	56	72	43	.	22	.	.	.	.	4	.	.	1	1	.	3	2	22	32	
Gentiana cruciata	5	2	5	.	.	.	.	.	.	.	1	2	4	.	.	.	.	.	.	.	54	.	3	2	.	2	2	3	23	.	.	.	.
Pulsatilla oenipontana	23	.	.	.	.	.	.	.	.	.	.	.
Dianthus deltooides	1	3	15	.	1	1	.	.	.	.	.	.
Lychnis viscaria	.	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	19	.	3	2	.	.	.	.	.
Peucedanum cervaria	.	7	1	.	.	.	3	.	.	.	.	.	.	.	2	.	.	.	11	6	.	.	33	8	.	8	3	2	52	5	3	1	.	3	.	.		
Fragaria viridis	2	5	.	.	.	1	5	14	11	.	.	3	4	3	.	41	18	13	.	.	.	.
Polygala major	27	6	6	.	.	.	.
Scorzonera hispanica	20	.	.	.	.	.	.
Carex michelii	3	2	4	.	.	.	.	.	.	.	18	3	4	.	.	.	.	.
Filipendula vulgaris	1	7	.	.	8	.	1	3	3	6	26	33	.	.	.	.	2				
Knautia drymeia	2	.	.	.	.	.	.	.	.	.	.	.	.	2	3	2	8	10	.	.	.	5	.	.				
Potentilla alba	5	.	.	.	.	.	.	.	.	1	8	.	.	.	.	.	.
Betonica alopecuros	40	.	.	.	.	.	.	.	.	.	.	.	1	3	53	.	.	4	.	2			
Molinia caerulea agg.	6	4	.	1	8	7	1	8	5	2	10	63	.	24	36	89	23	
Linum viscosum	5	2	.	.	.	.	.	.
Aquilegia vulgaris agg.	2	2	9	50	20	3	17	.	43			
Cirsium erisithales	2	19	.	.	.	.	.
Crepis alpestris	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	.	3	.	1	1	14	10	.	.	32			
Hippocrepis comosa	.	4	.	.	5	10	3	9	11	100	.	2	.	1	.	.	13	.	.	9	.	.	.	.	.	36	5	9	6	2	1	2	43	.	8	29	89	81
Laserpitium latifolium	16	.	.	.	.	.	.	.	.	.	.	.	.	.	13	.	9	2	2	1	5	32	.	.	15	.	30		
Festuca amethystina	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	23		
Carex ornithopoda	6	.	75	.	1	.	1	.	.	13	.	.	.	.	.	.	.	.	.	1	3	5	1	4	7	32	3	.	3	22	2		
Narcissus radiiflorus	1	2	25	.	.	.	.
Inula salicina	1	9	6	7	11	.	.	.			
Galium boreale	13	.	.	.	.	2	.	.	.	.	.	.	.	.	.	13	.	1	2	3	3	14	12	.	11	19	78	17		
Euphorbia verrucosa	17	.	.	.	.	.	.	.	.	.	.	.	.	2	3	16	18	.	16	19	56	6		
Carex montana	8	4	14	7	7	64	61	.	61	79	78	74		
Allium carinatum	30	6	.	.	.	.	3	8	.	14	.	.	2	.	2	16	.	.	.	.	.	.	14	.	.	3	1	15	7	1	3	18	45	80	.	48	56	34
Astrantia major	1	6	.	1	13	48	.	33	1	30		
Cirsium pannonicum	24	.	.	.	.	.	4	.	27	16	30	9	100	.	.	.			
Carex alba	3	.	.	.	.	.	.	1	.	7	.	.	.	.	.	.	.	.	.	1	1	.	2	26	97	5	2	22	2				
Calamagrostis varia	3	.	75	20	.	4	.	8	33	6	.	.	.	.	.	.	.	.	.	.	.	8	2	.	2	3	23	77	.	2	56	6		
Carex sempervirens	1	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	1	.	.	.	1	5	.	4	.	98			
Selaginella selaginoides	1	36		
Antennaria dioica	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	1	1	1	.	5	.	40	
Primula farinosa	1	28		
Hieracium hoppeanum	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5	1	.	.	.	.	11	40			
Gentiana clusii	3	.	.	.	.	.	.	.	.	.	.	.	.	.	5	.	.	1	38			
Persicaria vivipara	3	.	1	6	.	1	2	.	.	3	.	34			
Tofieldia calyculata	1	2	13	.	.	12	22	40			
Briza media	.	.	.	3	.	3	3	3	.	.	7	16	.	.	.	7	.	.	.	9	67	38	54	42	44	80	34	53	80	79	13	68	88	78	70	
Pimpinella saxifraga agg.	10	36	8	7	54	73	15	15	3	32	.	80	33	.	5	16	4	7	3	23	81	.	22	67	.	85	85	27	70	59	46	41	52	.	55	65	67	34		
Brachypodium pinnatum agg.	10	10	2	.	10	45	44	48	18	21	.	13	28	.	1	32	29	7	3	7	48	100	67	68	56	54	66	38	51	53	97	63	70	67	51	
Brachypodium rupestre	18	20	15	11	.	.	1	.	.	.	4	22	7	6	35	.	23	
Salvia pratensis	.	19	1	4	15	59	68	43	9	11	.	7	.	7	25	25	.	.	6	30	7	23	49	60	44	26	71	62	46	5	.	11	30	.	79	
Plantago media	.	3	2	5	5	14	10	5	3	7	.	17	.	2	5	.	.	.	7	82	.	11	67	.	.	15	54	29	33	54	55	42	48	31	83	16	33	11	73	
Prunella grandiflora	.	.	.	3	.	23	18	15	.	.	20	1	.	.	9	.	.	.	2	54	.	11	46	44	12	28	28	21	6	15	23	17	24	43	.	64
Lotus corniculatus agg.	.	28	29	29	54	36	35	18	3	21	25	40	30	18	4	9	25	27	3	27	64	7	56	33	.	92	41	63	65	73										

Column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	22a	22b	23	24	25	26	27	28	29	30	31	31a	32	33	34	35		
Securigera varia	10	6	9	7	28	55	11	25	3	4	.	.	24	.	6	21	13	.	41	4	2	14	44	.	23	15	38	9	5	30	20	12	5	50	3	1	.	2		
Trifolium repens	.	.	2	4	5	9	6	3	.	4	.	.	3	6	.	.	.	.	.	.	1	.	.	.	38	10	5	10	51	2	29	24	3	.	13	19	.	2
Berberis vulgaris	.	1	52	43	51	68	13	30	9	.	.	.	60	23	.	3	7	8	13	9	7	6	.	.	54	15	6	13	9	5	1	1	.	27	3	1	.	.		
Arenaria serpyllifolia agg.	20	16	7	45	54	9	35	3	.	4	.	73	11	24	4	18	.	.	21	46	4	50	56	33	38	23	1	5	10	8	7	5	4	.	8	.	11	2		
Sedum sexangulare	10	30	2	14	23	9	47	25	.	32	.	.	15	24	10	18	.	.	.	6	4	64	67	.	54	.	3	20	7	7	8	10	11	.	18	3	11	.		
Salvia verticillata	3	3	17	.	.	3	2	10	.	.	.	11	.	.	5	1	1	18	30	28	22	73	13	3	.	2	
Arabis hirsuta agg.	.	4	3	.	25	.	.	9	.	6	19	17	.	18	33	10	.	.	56	.	23	8	8	8	5	21	17	17	13	.	13	4	.	6	
Peucedanum oreoselinum	10	22	4	1	18	18	8	28	.	21	.	.	.	.	14	44	29	.	.	.	.	.	.	.	15	3	51	33	13	3	6	4	13	.	.	1	.	9
Pimpinella major	1	4	2	11	.	10	23	38	10	26	28	44	38	.
Acinos arvensis	30	22	33	30	41	59	11	13	3	25	.	33	1	.	19	39	.	.	12	12	2	7	67	.	54	.	.	7	.	3	1	1	.	.	.	.	2	
Silene vulgaris	.	1	1	.	.	.	.	.	.	.	.	.	3	6	1	2	.	.	9	.	1	7	.	.	8	15	10	18	16	6	17	17	31	.	18	6	22	9
Veronica spicata	40	39	34	28	62	18	48	23	.	.	.	87	.	.	1	2	.	.	2	1	.	.	.	54	18	6	1	16	.	.	.	.	.	.	.	.	.	.
Origanum vulgare	50	3	8	.	11	.	.	.	1	.	6	16	21	27	21	1	3	.	.	.	8	.	1	9	3	11	16	10	15	43	26	11	11	.	.	
Polygonatum odoratum	10	.	.	.	3	.	5	10	6	18	50	13	24	.	12	4	29	40	41	47	3	7	.	.	.	5	12	13	9	16	1	1	32	.	3	1	11	6	.	
Euphrasia officinalis	.	1	1	4	.	.	13	6	3	5	8	40	3	4	14	28	.	16	24	.	15	.	
Alyssum alyssoides	.	6	32	60	62	50	24	5	.	4	.	7	.	.	.	.	.	.	.	20	1	86	56	33	.	.	.	1	.	4	1	.	.	.	.	.	.	.
Verbascum lychnitis	20	15	33	44	36	36	16	5	.	4	.	20	13	.	4	5	.	.	6	.	.	.	.	.	21	4	7	3	.	1	1	1	.	.	.	.	.	.
Verbascum chaixii	10	7	8	9	5	.	.	.	39	.	2	35	27	70	25	.	.	.	12	1	.	.	.	.	.	.	.	26	1	6	5	1	.	.	8	.	.	.
Juniperus communis	.	3	57	32	26	9	5	10	12	4	25	.	15	.	3	5	4	.	3	.	.	.	.	.	8	.	1	5	5	.	.	.	.	3	.	.	.	.
Fraxinus excelsior	.	.	.	.	.	.	2	.	.	.	.	.	5	.	2	4	13	12	6	6	7	.	.	.	.	5	4	4	9	6	14	30	60	8	11	56	.	.
Rhinanthus aristatus agg.	25	.	11	.	3	5	.	27	13	.	14	15	.	1	11	.	.	33	.	.	55	.	
Echium vulgare	10	.	2	6	13	5	8	.	6	.	53	13	.	6	11	4	.	24	16	4	71	22	.	8	21	.	13	19	9	3	4	5	10	.	.	1	.	.		
Rhinanthus alectorolophus	5	3	3	.	2	5	11	19	18	.	16	22	.	13	.	.	
Avenula pratensis	.	4	.	.	.	2	3	.	.	.	60	5	.	4	.	.	.	.	6	9	7	33	.	23	44	15	3	23	1	3	1	.	5	28	.	26	.	.
Danthonia decumbens	.	1	.	.	.	.	.	.	.	.	1	.	1	.	.	.	.	.	.	.	.	.	.	15	.	7	16	.	2	7	16	13	5	39	33	19	.	.
Fragaria vesca	3	.	75	.	2	.	1	.	.	.	3	1	1	9	9	17	3	9	15	4	.	34	16	11	2	.	.	
Carex liparocarpus	10	54	17	23	41	45	34	18	.	.	53	.	.	.	.	.	.	.	.	.	.	.	.	62	21	1	1	2	.	.	.	.	.	.	.	.	.	.
Cynosurus cristatus	1	1	.	12	23	10	.	11	19	11	11	.	.	
Allium sphaerocephalon	70	40	30	24	26	9	.	.	.	.	.	.	.	.	.	.	.	.	41	.	64	33	.	46	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Seseli libanotis	.	1	.	.	.	5	3	6	11	.	33	.	3	.	4	.	.	.	2	2	.	.	.	.	21	22	19	9	11	10	3	1	.	.	1	.	.	.
Crataegus monogyna	.	1	1	.	.	.	8	.	.	.	.	.	.	.	2	.	.	.	5	28	.	.	.	15	.	4	3	29	10	13	8	.	3	3	11	.	.	.
Orobanche gracilis	.	.	5	4	3	.	.	3	6	4	8	.	.	41	24	7	22	5	.	10	5	11	3	.	.	2	11	11	.	.	
Heracleum sphondylium	3	4	3	11	.	14	10	11	.	16	20	22	11	.	.	
Crepis biennis	2	1	2	2	19	16	4	.	11	13	11	.	.	.	
Thymus pannonicus agg.	26	60	43	44	100	.	.	.	1	.	39	4	
Trifolium campestre	.	30	3	13	3	5	.	.	4	.	3	.	3	4	.	.	.	.	.	.	29	.	54	5	.	11	4	5	10	5	.	.	.	1	.	.	.	.
Rosa canina agg.	10	1	.	.	.	5	.	7	.	.	.	.	.	1	4	4	.	18	2	9	21	.	.	.	3	4	5	.	18	12	9	1	.	5	2	.	2	.
Aster amellus	.	3	4	.	.	11	20	3	11	.	.	.	.	5	11	13	.	3	6	10	.	.	33	8	10	19	1	.	38	1	1	4	.	.	.	.	.	.
Cuscuta epithymum	.	3	1	.	8	5	5	.	4	.	5	12	1	7	.	7	6	11	20	29	22	.	.	.	5	5	4	7	20	1	8	3	.	.	2	11	2	.		
Carex panicea	1	.	1	11	39	.	3	15	78	4	.	.	
Quercus robur	1	.	2	4	4	7	8	14	1	1	1	6	8	30	8	16	44	4	.	.
Ajuga reptans	3	1	.	.	5	12	21	.	24	15	33	2	.	.	.	
Odontites luteus	40	18	1	.	.	5	5	.	.	.	7	.	.	.	.	.	.	.	.	47	44	7	44	.	5	.	.	.	16	.	.	.	.	.	.	.	.	.
Carum carvi	1	5	9	2	8	2	12	11	2	.	3	9	.	2	.	.	
Geranium sanguineum	10	3	.	.	.	.	3	.	7	.	.	.	.	3	7	.	26	9	3	7	.	.	23	.	.	4	.	36	6	3	4	.	.	.	.	.	.	.
Agrimonia eupatoria	.	1	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	8	.	5	11	3	7	11	4	60	3	1	.	.	.	.	.
Tanacetum corymbosum	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	.	12	5	7	.	.	.	.	.	.	.	.	.	26	10	13	.	.	.	.	.	.	.
Senecio jacobaea	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	23	40	14	11	33	.	.	.	.	17	2	7	11	.	.	.	.	.	.
Aster alpinus	.	.	5	1	13	.	3	.	26	.	13	46	.	.	.	.	.	.	.	.	.	.	.	36	1	11	7	.	.	.	.	.	.	1	.	.	.	.
Picea abies	.	.	.	.	.	.	11	.	.	.	1	.	17	7	.	.	.	.	.	.	.	.	.	.	3	6	2	.	2	4	24	.	8	12	11	19	.	.
Thalictrum minus	.	.	.	5	.	.	50	27	11	.	1	.	21	27	21	21	1	.	.	.	.	.	.	33	3	10	11	1	1	.	6	.	.	.	.	.	4	.
Biscutella laevigata	50	27	8	.	8	5	.	.	11	5	1	12	20	.	.	11	.	5	1	.	28	.	.	.	
Amelanchier ovalis	.	1	.	.	.	5	18	11	25	.	2	.	8	.	17	47	47	48	13	1	2	.	.	4	
Sedum maximum	30	7	.	.	5	.	.	11	.	7	11	24	11	40	6	1	15	4	.	1	1	.	.	1	
Carpinus betulus	1	.	4	.	.	.	1	2	.	13	4	11	8	.	5	9	11	.	.	
Tragopogon dubius	.	1	15	31	15	27	2	1	3	3	.	1	1	.	5	1	
Valeriana officinalis agg.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	12	1	.	.	.	.	.	1	5	6	2									

Supplement E4. Data sources.

Anhang E4. Herkunft der Aufnahmen.

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg_lon	deg_lat	TWI_L6
1	Diplachno-Festucetum valesiacae	IT	426798	Braun-Blanquet J.	1961	45	1	10.16581	46.22117	7
1	Diplachno-Festucetum valesiacae	IT	426799	Braun-Blanquet J.	1961	45	2	9.58491	46.15436	7
1	Diplachno-Festucetum valesiacae	IT	426800	Braun-Blanquet J.	1961	45	3	10.08923	46.16661	7
1	Diplachno-Festucetum valesiacae	IT	426801	Braun-Blanquet J.	1961	45	4	9.87771	46.17876	7
1	Diplachno-Festucetum valesiacae	IT	426802	Braun-Blanquet J.	1961	45	5	9.62369	46.1484	7
1	Diplachno-Festucetum valesiacae	IT	426803	Braun-Blanquet J.	1961	45	6	9.89698	46.17172	7
1	Diplachno-Festucetum valesiacae	IT	426804	Braun-Blanquet J.	1961	45	7	9.89212	46.17179	7
1	Diplachno-Festucetum valesiacae	IT	426805	Braun-Blanquet J.	1961	45	8	10.03415	46.16165	7
1	Diplachno-Festucetum valesiacae	IT	426806	Braun-Blanquet J.	1961	45	9	10.03415	46.16165	7
1	Diplachno-Festucetum valesiacae	IT	426807	Braun-Blanquet J.	1961	45	10	10.03415	46.16165	7
2	Bothriochloo-Diplachnetum	IT	426554	Pedrotti F.	1963	1	1	11.1749	46.0843	7
2	Bothriochloo-Diplachnetum	IT	426555	Pedrotti F.	1963	1	2	11.1749	46.0843	7
2	Bothriochloo-Diplachnetum	IT	426556	Pedrotti F.	1963	1	3	11.1691	46.0821	32
2	Bothriochloo-Diplachnetum	IT	426557	Pedrotti F.	1963	1	4	11.1691	46.0821	7
2	Bothriochloo-Diplachnetum	IT	426558	Pedrotti F.	1963	1	5	11.1691	46.0821	7
2	Bothriochloo-Diplachnetum	IT	426559	Pedrotti F.	1963	1	6	11.1106	46.0213	7
2	Bothriochloo-Diplachnetum	IT	426560	Pedrotti F.	1963	1	7	11.1213	46.1104	32
2	Bothriochloo-Diplachnetum	IT	426561	Pedrotti F.	1963	1	8	11.1613	46.0815	7
2	Bothriochloo-Diplachnetum	IT	426562	Pedrotti F.	1963	p291		0	0	32
2	Bothriochloo-Diplachnetum	IT	426563	Pedrotti F.	1963	2	1	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426564	Pedrotti F.	1963	2	2	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426565	Pedrotti F.	1963	2	3	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426566	Pedrotti F.	1963	2	4	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426567	Pedrotti F.	1963	2	5	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426568	Pedrotti F.	1963	2	6	11.1641	46.09	7
2	Bothriochloo-Diplachnetum	IT	426569	Pedrotti F.	1963	2	7	11.1373	46.0895	7
2	Bothriochloo-Diplachnetum	IT	426570	Pedrotti F.	1963	2	8	11.1364	46.077	7
2	Bothriochloo-Diplachnetum	IT	426571	Pedrotti F.	1963	2	9	11.1162	46.1402	7
2	Bothriochloo-Diplachnetum	IT	426578	Pignatti E. & Pignatti S.	2014	4.5	1	0	0	7
2	Bothriochloo-Diplachnetum	IT	426579	Pignatti E. & Pignatti S.	2014	4.5	2	0	0	5
2	Bothriochloo-Diplachnetum	IT	426580	Pignatti E. & Pignatti S.	2014	4.5	3	0	0	5
2	Bothriochloo-Diplachnetum	IT	426581	Pignatti E. & Pignatti S.	2014	4.5	4	0	0	7
2	Bothriochloo-Diplachnetum	IT	426582	Pignatti E. & Pignatti S.	2014	4.5	5	0	0	7
2	Bothriochloo-Diplachnetum	IT	426583	Pignatti E. & Pignatti S.	2014	4.5	6	0	0	7
2	Bothriochloo-Diplachnetum	IT	426584	Pignatti E. & Pignatti S.	2014	4.5	7	0	0	5
2	Bothriochloo-Diplachnetum	IT	426585	Pignatti E. & Pignatti S.	2014	4.5	8	0	0	11
2	Bothriochloo-Diplachnetum	IT	426586	Pignatti E. & Pignatti S.	2014	4.5	9	0	0	5
2	Bothriochloo-Diplachnetum	IT	426587	Pignatti E. & Pignatti S.	2014	4.5	10	0	0	7
2	Bothriochloo-Diplachnetum	IT	426588	Pignatti E. & Pignatti S.	2014	4.5	11	0	0	11
2	Bothriochloo-Diplachnetum	IT	426589	Pignatti E. & Pignatti S.	2014	4.5	12	0	0	7
2	Bothriochloo-Diplachnetum	IT	426590	Pignatti E. & Pignatti S.	2014	4.5	13	0	0	7
2	Bothriochloo-Diplachnetum	IT	426591	Pignatti E. & Pignatti S.	2014	4.5	14	0	0	7
2	Bothriochloo-Diplachnetum	IT	426592	Pignatti E. & Pignatti S.	2014	4.5	15	0	0	7
2	Bothriochloo-Diplachnetum	IT	426929	Braun-Blanquet J.	1961	54	1	11.32068	46.50427	7
2	Bothriochloo-Diplachnetum	IT	426930	Braun-Blanquet J.	1961	54	2	11.32068	46.50427	7
2	Bothriochloo-Diplachnetum	IT	426931	Braun-Blanquet J.	1961	54	3	11.32068	46.50427	7
2	Bothriochloo-Diplachnetum	IT	426932	Braun-Blanquet J.	1961	54	4	11.32068	46.50427	7
2	Bothriochloo-Diplachnetum	IT	426933	Braun-Blanquet J.	1961	54	5	11.32068	46.50427	7
2	Bothriochloo-Diplachnetum	IT	426934	Braun-Blanquet J.	1961	54	6	11.16712	46.67408	7
2	Bothriochloo-Diplachnetum	IT	426935	Braun-Blanquet J.	1961	54	7	11.16902	46.67777	7
2	Bothriochloo-Diplachnetum	IT	426936	Braun-Blanquet J.	1961	55	1	11.56888	46.64352	7
2	Bothriochloo-Diplachnetum	IT	426937	Braun-Blanquet J.	1961	55	2	11.36131	46.52159	7
2	Bothriochloo-Diplachnetum	IT	426938	Braun-Blanquet J.	1961	55	3	11.36131	46.52159	7
2	Bothriochloo-Diplachnetum	IT	426939	Braun-Blanquet J.	1961	55	4	11.25289	46.54009	7
2	Bothriochloo-Diplachnetum	IT	426940	Braun-Blanquet J.	1961	55	5	11.35907	46.51544	7
2	Bothriochloo-Diplachnetum	IT	426941	Braun-Blanquet J.	1961	55	6	11.24292	46.54405	7
2	Bothriochloo-Diplachnetum	IT	426942	Braun-Blanquet J.	1961	55	7	11.37177	46.50367	7
2	Bothriochloo-Diplachnetum	IT	426943	Braun-Blanquet J.	1961	55	8	11.36788	46.50398	7
2	Bothriochloo-Diplachnetum	IT	426944	Braun-Blanquet J.	1961	55	9	11.36354	46.50448	7
2	Bothriochloo-Diplachnetum	IT	426945	Braun-Blanquet J.	1961	56	1	11.65342	46.74656	7
2	Bothriochloo-Diplachnetum	IT	426946	Braun-Blanquet J.	1961	56	2	11.66777	46.72805	7
2	Bothriochloo-Diplachnetum	IT	426947	Braun-Blanquet J.	1961	56	3	11.57164	46.65293	7
2	Bothriochloo-Diplachnetum	IT	426948	Braun-Blanquet J.	1961	56	4	11.64963	46.64085	7
2	Bothriochloo-Diplachnetum	IT	426949	Braun-Blanquet J.	1961	56	5	11.57964	46.65237	7
2	Bothriochloo-Diplachnetum	IT	426950	Braun-Blanquet J.	1961	56	6	11.66645	46.72905	11
2	Bothriochloo-Diplachnetum	IT	426951	Braun-Blanquet J.	1961	56	7	11.66886	46.72841	7
2	Bothriochloo-Diplachnetum	IT	426952	Braun-Blanquet J.	1961	56	8	11.66775	46.72252	7
2	Bothriochloo-Diplachnetum	IT	426953	Braun-Blanquet J.	1961	56	9	11.66597	46.71892	7
2	Bothriochloo-Diplachnetum	IT	426954	Braun-Blanquet J.	1961	56	10	11.61425	46.78967	11
2	Bothriochloo-Diplachnetum	IT	426955	Braun-Blanquet J.	1961	56	11	11.61425	46.78967	11
2	Bothriochloo-Diplachnetum	IT	426956	Braun-Blanquet J.	1961	56	12	11.45498	46.88323	11
2	Bothriochloo-Diplachnetum	IT	426957	Braun-Blanquet J.	1961	56	13	11.89011	46.78516	7
2	Bothriochloo-Diplachnetum	IT	426958	Braun-Blanquet J.	1961	56	14	11.89011	46.78516	11
2	Bothriochloo-Diplachnetum	IT	426959	Braun-Blanquet J.	1961	56	15	11.44045	46.90018	7
2	Bothriochloo-Diplachnetum	IT	426960	Braun-Blanquet J.	1961	56	16	11.4464	46.90227	7
2	Bothriochloo-Diplachnetum	IT	426961	Braun-Blanquet J.	1961	56	17	11.64547	46.71007	7
2	Bothriochloo-Diplachnetum	IT	426962	Braun-Blanquet J.	1961	56	18	11.64688	46.71037	7
3	Stipo-Seseliatum levigati	IT	426597	Lübben M. & Erschbamer B.	2021		25	10.685222	46.627361	2
3	Stipo-Seseliatum levigati	IT	426604	Lübben M. & Erschbamer B.	2021		68	10.699917	46.63125	2
3	Stipo-Seseliatum levigati	IT	426607	Lübben M. & Erschbamer B.	2021		27	10.725194	46.633389	2
3	Stipo-Seseliatum levigati	IT	426609	Lübben M. & Erschbamer B.	2021		82	10.727167	46.633472	2
3	Stipo-Seseliatum levigati	IT	426618	Lübben M. & Erschbamer B.	2021		87	10.780417	46.631028	1
3	Stipo-Seseliatum levigati	IT	426619	Lübben M. & Erschbamer B.	2021		88	10.779694	46.631222	2
3	Stipo-Seseliatum levigati	IT	426621	Lübben M. & Erschbamer B.	2021		89	10.780667	46.631083	1
3	Stipo-Seseliatum levigati	IT	426628	Lübben M. & Erschbamer B.	2021		80	10.623028	46.63225	3
3	Stipo-Seseliatum levigati	IT	426629	Lübben M. & Erschbamer B.	2021		73	10.623278	46.632361	2
3	Stipo-Seseliatum levigati	IT	426630	Lübben M. & Erschbamer B.	2021		72	10.623528	46.632444	2
3	Stipo-Seseliatum levigati	IT	426631	Lübben M. & Erschbamer B.	2021		79	10.623917	46.632472	3
3	Stipo-Seseliatum levigati	IT	426632	Lübben M. & Erschbamer B.	2021		90	10.957167	46.6465	3
3	Stipo-Seseliatum levigati	IT	426633	Lübben M. & Erschbamer B.	2021		91	10.957306	46.647167	2
3	Stipo-Seseliatum levigati	IT	426634	Lübben M. & Erschbamer B.	2021		50	11.034889	46.663639	3
3	Stipo-Seseliatum levigati	IT	426635	Lübben M. & Erschbamer B.	2021		92	11.038028	46.664528	1
3	Stipo-Seseliatum levigati	IT	426636	Lübben M. & Erschbamer B.	2021		43	11.03875	46.66475	3
3	Stipo-Seseliatum levigati	IT	426637	Lübben M. & Erschbamer B.	2021		71	11.042167	46.665611	1
3	Stipo-Seseliatum levigati	IT	426642	Lübben M. & Erschbamer B.	2021		49	10.957694	46.649667	3
3	Stipo-Seseliatum levigati	IT	426643	Lübben M. & Erschbamer B.	2021		85	10.631222	46.631722	2
3	Stipo-Seseliatum levigati	IT	426644	Lübben M. & Erschbamer B.	2021		86	10.632611	46.631806	2
3	Stipo-Seseliatum levigati	IT	426645	Lübben M. & Erschbamer B.	2021		76	10.630056	46.631222	3
3	Stipo-Seseliatum levigati	IT	426649	Lübben M. & Erschbamer B.	2021		3	10.52	46.673389	3
3	Stipo-Seseliatum levigati	IT	426652	Lübben M. & Erschbamer B.	2021		74	10.580083	46.677806	2
3	Stipo-Seseliatum levigati	IT	426653	Lübben M. & Erschbamer B.	2021		78	10.580444	46.677806	2
3	Stipo-Seseliatum levigati	IT	426664	Lübben M. & Erschbamer B.	2021		75	10.5735	46.6815	3
3	Stipo-Seseliatum levigati	IT	426666	Lübben M. & Erschbamer B.	2021		77	10.573194	46.68075	3
3	Stipo-Seseliatum levigati	IT	426669	Lübben M. & Erschbamer B.	2021		66	10.683861	46.627528	4
3	Stipo-Seseliatum levigati	IT	426673	Lübben M. & Erschbamer B.	2021		67	10.581	46.675333	3
3	Stipo-Seseliatum levigati	IT	426685	Lübben M. & Erschbamer B.	2021		65	10.574111	46.677528	2
3	Stipo-Seseliatum levigati	IT	426868	Braun-Blanquet J.	1961	50	26	10.75657	46.61743	5
3	Stipo-Seseliatum levigati	IT	426893	Braun-Blanquet J.	1961	51	24	10.69249	46.62639	1
3	Stipo-Seseliatum levigati	IT	426894	Braun-Blanquet J.	1961	51	25	10.61292	46.63439	2
3	Stipo-Seseliatum levigati	IT	426898	Braun-Blanquet J.	1961	51	29	10.82767	46.62826	1
3	Stipo-Seseliatum levigati	IT	426900	Braun-Blanquet J.	1961	51	31	10.75728	46.63428	1
3	Stipo-Seseliatum levigati	IT	426901	Braun-Blanquet J.	1961	51	32	10.7619	46.635	2
3	Stipo-Seseliatum levigati	IT	426903	Braun-Blanquet J.	1961	51	34	10.70966	46.62886	2
3	Stipo-Seseliatum levigati	IT								

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4	Festuco-Caricetum supinae	IT	426871	Braun-Blanquet J.	1961	51	2	10.52945	46.67808	5
4	Festuco-Caricetum supinae	IT	426872	Braun-Blanquet J.	1961	51	3	10.56145	46.67748	4
4	Festuco-Caricetum supinae	IT	426873	Braun-Blanquet J.	1961	51	4	10.55829	46.67857	4
4	Festuco-Caricetum supinae	IT	426874	Braun-Blanquet J.	1961	51	5	10.56205	46.67708	4
4	Festuco-Caricetum supinae	IT	426875	Braun-Blanquet J.	1961	51	6	10.82876	46.62816	1
4	Festuco-Caricetum supinae	IT	426876	Braun-Blanquet J.	1961	51	7	10.55682	46.67915	4
4	Festuco-Caricetum supinae	IT	426877	Braun-Blanquet J.	1961	51	8	10.55682	46.67915	4
4	Festuco-Caricetum supinae	IT	426878	Braun-Blanquet J.	1961	51	9	10.58618	46.66776	4
4	Festuco-Caricetum supinae	IT	426879	Braun-Blanquet J.	1961	51	10	10.52912	46.67724	4
4	Festuco-Caricetum supinae	IT	426880	Braun-Blanquet J.	1961	51	11	10.52945	46.6768	4
4	Festuco-Caricetum supinae	IT	426881	Braun-Blanquet J.	1961	51	12	10.90324	46.632	4
4	Festuco-Caricetum supinae	IT	426882	Braun-Blanquet J.	1961	51	13	10.61292	46.63439	4
4	Festuco-Caricetum supinae	IT	426883	Braun-Blanquet J.	1961	51	14	10.58573	46.6674	4
4	Festuco-Caricetum supinae	IT	426884	Braun-Blanquet J.	1961	51	15	10.5614	46.67792	4
4	Festuco-Caricetum supinae	IT	426885	Braun-Blanquet J.	1961	51	16	10.5614	46.67792	4
4	Festuco-Caricetum supinae	IT	426886	Braun-Blanquet J.	1961	51	17	10.56231	46.67733	4
4	Festuco-Caricetum supinae	IT	426887	Braun-Blanquet J.	1961	51	18	10.58559	46.66779	4
4	Festuco-Caricetum supinae	IT	426888	Braun-Blanquet J.	1961	51	19	10.46963	46.6516	4
4	Festuco-Caricetum supinae	IT	426889	Braun-Blanquet J.	1961	51	20	10.58844	46.66913	4
4	Festuco-Caricetum supinae	IT	426890	Braun-Blanquet J.	1961	51	21	10.58052	46.67643	4
4	Festuco-Caricetum supinae	IT	426891	Braun-Blanquet J.	1961	51	22	10.76966	46.63189	4
4	Festuco-Caricetum supinae	IT	426895	Braun-Blanquet J.	1961	51	26	10.55756	46.67881	4
4	Festuco-Caricetum supinae	IT	426896	Braun-Blanquet J.	1961	51	27	10.56166	46.67773	4
4	Festuco-Caricetum supinae	IT	426897	Braun-Blanquet J.	1961	51	28	10.58554	46.66814	4
4	Festuco-Caricetum supinae	IT	426899	Braun-Blanquet J.	1961	51	30	10.70538	46.62782	4
4	Festuco-Caricetum supinae	IT	426902	Braun-Blanquet J.	1961	51	33	10.56166	46.67773	4
4	Festuco-Caricetum supinae	IT	426904	Braun-Blanquet J.	1961	51	35	10.84251	46.62332	4
4	Festuco-Caricetum supinae	IT	426916	Braun-Blanquet J.	1961	52	12	11.07793	46.69188	7
4	Festuco-Caricetum supinae	IT	445698	Strimmer A.	1974	1.1	3	0	0	4
4	Festuco-Caricetum supinae	IT	445699	Strimmer A.	1974	1.1	4	0	0	2
4	Festuco-Caricetum supinae	IT	445700	Strimmer A.	1974	1.1	5	0	0	4
4	Festuco-Caricetum supinae	IT	445702	Strimmer A.	1974	1.1	7	0	0	4
4	Festuco-Caricetum supinae	IT	445705	Strimmer A.	1974	1.1	10	0	0	2
4	Festuco-Caricetum supinae	IT	445707	Strimmer A.	1974	1.1	12	0	0	2
4	Festuco-Caricetum supinae	IT	445709	Strimmer A.	1974	1.1	14	0	0	2
4	Festuco-Caricetum supinae	IT	445711	Strimmer A.	1974	1.1	16	0	0	2
4	Festuco-Caricetum supinae	IT	445715	Strimmer A.	1974	1.1	20	0	0	2
4	Festuco-Caricetum supinae	IT	445737	Strimmer A.	1974	1.2	17	0	0	4
4	Festuco-Caricetum supinae	IT	445738	Strimmer A.	1974	1.2	18	0	0	3
4	Festuco-Caricetum supinae	IT	445740	Strimmer A.	1974	1.2	20	0	0	4
4	Festuco-Caricetum supinae	IT	445741	Strimmer A.	1974	1.2	21	0	0	2
4	Festuco-Caricetum supinae	IT	445746	Strimmer A.	1974	1.3	1	0	0	3
4	Festuco-Caricetum supinae	IT	445748	Strimmer A.	1974	1.3	3	0	0	3
4	Festuco-Caricetum supinae	IT	445749	Strimmer A.	1974	1.3	4	0	0	3
4	Festuco-Caricetum supinae	IT	445750	Strimmer A.	1974	1.3	5	0	0	3
4	Festuco-Caricetum supinae	IT	445751	Strimmer A.	1974	1.3	6	0	0	3
4	Festuco-Caricetum supinae	IT	445755	Strimmer A.	1974	1.3	10	0	0	2
4	Festuco-Caricetum supinae	IT	445758	Strimmer A.	1974	1.3	13	0	0	2
4	Festuco-Caricetum supinae	IT	445761	Strimmer A.	1974	2	1	0	0	3
4	Festuco-Caricetum supinae	IT	445766	Strimmer A.	1974	2	6	0	0	3
4	Festuco-Caricetum supinae	IT	445767	Strimmer A.	1974	2	7	0	0	3
4	Festuco-Caricetum supinae	IT	445768	Strimmer A.	1974	2	8	0	0	3
4	Festuco-Caricetum supinae	IT	445769	Strimmer A.	1974	2	9	0	0	3
4	Festuco-Caricetum supinae	IT	445771	Strimmer A.	1974	2	11	0	0	3
4	Festuco-Caricetum supinae	IT	445773	Strimmer A.	1974	2	13	0	0	2
4	Festuco-Caricetum supinae	IT	445781	Strimmer A.	1974	2	21	0	0	2
4	Festuco-Caricetum supinae	IT	445783	Strimmer A.	1974	2	23	0	0	3
4	Festuco-Caricetum supinae	IT	445784	Strimmer A.	1974	2	24	0	0	3
4	Festuco-Caricetum supinae	IT	445786	Strimmer A.	1974	2	26	0	0	3
4	Festuco-Caricetum supinae	IT	445787	Strimmer A.	1974	2	27	0	0	3
4	Festuco-Caricetum supinae	IT	445788	Strimmer A.	1974	2	28	0	0	3
4	Festuco-Caricetum supinae	IT	445790	Strimmer A.	1974	2	30	0	0	2
4	Festuco-Caricetum supinae	IT	445791	Strimmer A.	1974	2	31	0	0	2
4	Festuco-Caricetum supinae	IT	445792	Strimmer A.	1974	2	32	0	0	3
4	Festuco-Caricetum supinae	IT	445793	Strimmer A.	1974	2	33	0	0	2
4	Festuco-Caricetum supinae	IT	445809	Strimmer A.	1974	3	14	0	0	2
4	Festuco-Caricetum supinae	IT	445816	Strimmer A.	1974	3	21	0	0	2
4	Festuco-Caricetum supinae	IT	445833	Strimmer A.	1974	4	4	0	0	2
4	Festuco-Caricetum supinae	IT	445842	Strimmer A.	1974	5	4	0	0	2
4	Festuco-Caricetum supinae	IT	445846	Strimmer A.	1974	5	8	0	0	4
4	Festuco-Caricetum supinae	IT	445847	Strimmer A.	1974	5	9	0	0	4
4	Festuco-Caricetum supinae	IT	445856	Strimmer A.	1974	6	8	0	0	2
4	Festuco-Caricetum supinae	IT	445861	Strimmer A.	1974	7	3	0	0	3
4	Festuco-Caricetum supinae	IT	445867	Strimmer A.	1974	7	9	0	0	2
5	Festuco-Poetum xerophilae	IT	426646	Lübben M. & Erschbamer B.	2021	13	10.572028	46.680833		3
5	Festuco-Poetum xerophilae	IT	426647	Lübben M. & Erschbamer B.	2021	5	10.519667	46.672722		4
5	Festuco-Poetum xerophilae	IT	426648	Lübben M. & Erschbamer B.	2021	4	10.52	46.672972		4
5	Festuco-Poetum xerophilae	IT	426650	Lübben M. & Erschbamer B.	2021	1	10.520528	46.674		4
5	Festuco-Poetum xerophilae	IT	426680	Lübben M. & Erschbamer B.	2021	18	10.586139	46.680028		4
5	Festuco-Poetum xerophilae	IT	426843	Braun-Blanquet J.	1936	3	1	10.46465	46.64925	4
5	Festuco-Poetum xerophilae	IT	426844	Braun-Blanquet J.	1936	3	2	10.46888	46.65197	4
5	Festuco-Poetum xerophilae	IT	426845	Braun-Blanquet J.	1936	3	3	10.4536	46.64516	4
5	Festuco-Poetum xerophilae	IT	426846	Braun-Blanquet J.	1936	3	4	10.52976	46.67711	4
5	Festuco-Poetum xerophilae	IT	426847	Braun-Blanquet J.	1936	3	5	10.52753	46.71367	4
5	Festuco-Poetum xerophilae	IT	426848	Braun-Blanquet J.	1936	3	6	10.56515	46.63395	4
5	Festuco-Poetum xerophilae	CH	426849	Braun-Blanquet J.	1936	3	7	10.44256	46.62627	4
5	Festuco-Poetum xerophilae	IT	426850	Braun-Blanquet J.	1936	3	8	10.52328	46.67432	4
5	Festuco-Poetum xerophilae	CH	426852	Braun-Blanquet J.	1961	50	10	10.44527	46.62845	5
5	Festuco-Poetum xerophilae	CH	426853	Braun-Blanquet J.	1961	50	11	10.42238	46.60701	5
5	Festuco-Poetum xerophilae	CH	426854	Braun-Blanquet J.	1961	50	12	10.44104	46.62562	5
5	Festuco-Poetum xerophilae	IT	426855	Braun-Blanquet J.	1961	50	13	10.46933	46.65186	4
5	Festuco-Poetum xerophilae	CH	426856	Braun-Blanquet J.	1961	50	14	10.42328	46.60704	5
5	Festuco-Poetum xerophilae	CH	426857	Braun-Blanquet J.	1961	50	15	10.43517	46.62329	4
5	Festuco-Poetum xerophilae	CH	426858	Braun-Blanquet J.	1961	50	16	10.44709	46.6327	4
5	Festuco-Poetum xerophilae	IT	426859	Braun-Blanquet J.	1961	50	17	10.46609	46.64938	5
5	Festuco-Poetum xerophilae	IT	426860	Braun-Blanquet J.	1961	50	18	10.46407	46.64881	5
5	Festuco-Poetum xerophilae	CH	426861	Braun-Blanquet J.	1961	50	19	10.44709	46.6327	5
5	Festuco-Poetum xerophilae	IT	426862	Braun-Blanquet J.	1961	50	20	10.52112	46.67359	4
5	Festuco-Poetum xerophilae	IT	426863	Braun-Blanquet J.	1961	50	21	10.52976	46.67711	4
5	Festuco-Poetum xerophilae	IT	426864	Braun-Blanquet J.	1961	50	22	10.52914	46.67862	4
5	Festuco-Poetum xerophilae	IT	426865	Braun-Blanquet J.	1961	50	23	10.57363	46.63061	4
5	Festuco-Poetum xerophilae	IT	426866	Braun-Blanquet J.	1961	50	24	10.59425	46.61438	5
5	Festuco-Poetum xerophilae	IT	426867	Braun-Blanquet J.	1961	50	25	10.54222	46.66109	4
5	Festuco-Poetum xerophilae	IT	426869	Braun-Blanquet J.	1961	50	27	10.6981	46.60795	4
5	Festuco-Poetum xerophilae	IT	426892	Braun-Blanquet J.	1961	51	23	0	0	4
5	Festuco-Poetum xerophilae	IT	445703	Strimmer A.	1974	1.1	8	0	0	4
5	Festuco-Poetum xerophilae	IT	445726	Strimmer A.	1974	1.2	6	0	0	4
5	Festuco-Poetum xerophilae	IT	445730	Strimmer A.	1974	1.2	10	0	0	4
5	Festuco-Poetum xerophilae	IT	445831	Strimmer A.	1974	4	2	0	0	4
5	Festuco-Poetum xerophilae	IT	445834	Strimmer A.	1974	4	5	0	0	3
5	Festuco-Poetum xerophilae	IT	445840	Strimmer A.	1974	5	2	0	0	4
5	Festuco-Poetum xerophilae	IT	445844	Strimmer A.	1974	5	6	0	0	4
5	Festuco-Poetum xerophilae	IT	445862	Strimmer A.	1974	7	4	0	0	4
6	Petrorragio-Artemisietum campestris	IT	426821	Braun-Blanquet J.	1961	46	14	9.75081	46.17293	7
6	Petrorragio-Artemisietum campestris	IT	426822	Braun-Blanquet J.	1961	48	1	10.07592	46.16538	7
6	Petrorragio-Artemisietum campestris	IT	426823	Braun-Blanquet J.	1961	48	2	10.31415	46.33167	4
6	Petrorragio-Artemisietum campestris	IT	426824	Braun-Blanquet J.	1961	48	3	10.31415	46.33167	7
6	Petrorragio-Artemisietum campestris	IT	426825	Braun-Blanquet J.	1961	48	4	10.31126	46.33155	4
6	Petrorragio-Artemisietum campestris	IT	426826	Braun-Blanquet J.	1961	48	5	10.31987	46.33335	5
6	Petrorragio-Artemisietum campestris	IT	426827	Braun-Blanquet J.	1961	48	6	10.31987	46.33335	2
6	Petrorragio-Artemisietum campestris	IT	426828	Braun-Blanquet J.	1961	48	7	10.31683	46.32608	5
6	Petrorragio-Artemisietum campestris									

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7	Astragalo-Brometum	AT	425129	Kielhauser G. E.	1954	1	22	10.71411	47.07984	11
7	Astragalo-Brometum	AT	425130	Kielhauser G. E.	1954	1	23	10.67679	47.07647	5
7	Astragalo-Brometum	AT	425131	Kielhauser G. E.	1954	1	24	0	0	5
7	Astragalo-Brometum	AT	425132	Kielhauser G. E.	1954	2	1	10.69138	47.08082	5
7	Astragalo-Brometum	AT	425133	Kielhauser G. E.	1954	2	2	10.68852	47.08355	2
7	Astragalo-Brometum	AT	425134	Kielhauser G. E.	1954	2	3	10.69138	47.08082	5
7	Astragalo-Brometum	CH	426273	Braun-Blanquet J.	1918	p.14		0	0	10
7	Astragalo-Brometum	AT	426445	Magnes M. et al.	2021	S2	23	10.62804	47.11605	5
7	Astragalo-Brometum	AT	426446	Magnes M. et al.	2021	S2	26	10.628435	47.116017	5
7	Astragalo-Brometum	AT	426454	Magnes M. et al.	2021	S2	24	10.606767	47.120769	5
7	Astragalo-Brometum	AT	426461	Magnes M. et al.	2021	S2	20	10.70059	47.08089	10
7	Astragalo-Brometum	AT	426462	Magnes M. et al.	2021	S2	29	10.70066	47.08081	5
7	Astragalo-Brometum	AT	426463	Magnes M. et al.	2021	S2	22	10.606	47.12	5
7	Astragalo-Brometum	AT	426464	Magnes M. et al.	2021	S2	27	10.60658	47.12057	7
7	Astragalo-Brometum	AT	426467	Magnes M. et al.	2021	S2	17	10.69602	47.08069	5
7	Astragalo-Brometum	AT	426468	Magnes M. et al.	2021	S2	18	10.69617	47.08061	5
7	Astragalo-Brometum	AT	426470	Magnes M. et al.	2021	S2	21	10.60588	47.12069	5
7	Astragalo-Brometum	AT	426487	Magnes M. et al.	2021	S2	32	10.70086	47.08084	5
7	Astragalo-Brometum	AT	426488	Magnes M. et al.	2021	S2	25	10.60669	47.12082	5
7	Astragalo-Brometum	AT	426489	Magnes M. et al.	2021	S2	9	10.6524	47.07591	5
7	Astragalo-Brometum	AT	426491	Magnes M. et al.	2021	S2	19	10.6534	47.0769	5
7	Astragalo-Brometum	AT	426497	Magnes M. et al.	2021	S2	28	10.626823	47.116254	5
7	Astragalo-Brometum	AT	426501	Magnes M. et al.	2021	S2	15	10.69963	47.08112	5
7	Astragalo-Brometum	AT	426504	Magnes M. et al.	2021	S2	30	10.695546	47.080828	5
7	Astragalo-Brometum	AT	426505	Magnes M. et al.	2021	S2	16	10.6967	47.08127	5
7	Astragalo-Brometum	CH	426739	Braun-Blanquet J.	1961	41	1	10.37608	46.83359	5
7	Astragalo-Brometum	CH	426740	Braun-Blanquet J.	1961	41	2	10.37608	46.83359	5
7	Astragalo-Brometum	CH	426741	Braun-Blanquet J.	1961	41	3	10.19783	46.7761	10
7	Astragalo-Brometum	CH	426743	Braun-Blanquet J.	1961	41	5	10.45044	46.7859	5
7	Astragalo-Brometum	CH	426744	Braun-Blanquet J.	1961	41	6	10.37575	46.83303	10
7	Astragalo-Brometum	CH	426746	Braun-Blanquet J.	1961	41	8	10.45855	46.88075	10
7	Astragalo-Brometum	CH	426752	Braun-Blanquet J.	1961	41	14	10.20026	46.77168	10
7	Astragalo-Brometum	CH	426753	Braun-Blanquet J.	1961	41	15	10.24902	46.79071	10
7	Astragalo-Brometum	CH	426754	Braun-Blanquet J.	1961	41	16	10.26844	46.79243	5
7	Astragalo-Brometum	CH	426756	Braun-Blanquet J.	1961	41	18	10.19783	46.7761	10
7	Astragalo-Brometum	CH	426759	Braun-Blanquet J.	1961	41	21	10.28012	46.79575	5
7	Astragalo-Brometum	CH	426762	Braun-Blanquet J.	1961	41	24	10.19483	46.77653	14
7	Astragalo-Brometum	CH	426763	Braun-Blanquet J.	1961	41	25	10.20395	46.7737	14
7	Astragalo-Brometum	CH	426764	Braun-Blanquet J.	1961	41	26	10.20372	46.77357	14
7	Astragalo-Brometum	CH	426765	Braun-Blanquet J.	1961	41	27	10.20511	46.77388	14
8	(Teucrio-Caricetum humilis)	AT	376004	W. Willner	ined.			10.94664	47.27592	10
8	(Teucrio-Caricetum humilis)	AT	376005	W. Willner	ined.			10.93934	47.27568	32
8	(Teucrio-Caricetum humilis)	AT	376007	W. Willner	ined.			10.75597	47.20536	10
8	(Teucrio-Caricetum humilis)	AT	376008	W. Willner	ined.			10.7576	47.20419	5
8	(Teucrio-Caricetum humilis)	AT	376015	W. Willner	ined.			10.56004	47.14432	5
8	(Teucrio-Caricetum humilis)	AT	425137	Kielhauser G. E.	1954	2	6	10.55654	47.1439	5
8	(Teucrio-Caricetum humilis)	AT	425138	Kielhauser G. E.	1954	3	1	10.55708	47.14326	5
8	(Teucrio-Caricetum humilis)	AT	425139	Kielhauser G. E.	1954	3	2	10.55708	47.14326	5
8	(Teucrio-Caricetum humilis)	AT	425140	Kielhauser G. E.	1954	3	3	10.55277	47.14256	5
8	(Teucrio-Caricetum humilis)	AT	425141	Kielhauser G. E.	1954	3	4	10.55708	47.14326	5
8	(Teucrio-Caricetum humilis)	AT	425142	Kielhauser G. E.	1954	3	5	10.55708	47.14326	4
8	(Teucrio-Caricetum humilis)	AT	425148	Braun-Blanquet J.	1961	44	1	11.2493	47.27514	10
8	(Teucrio-Caricetum humilis)	AT	425149	Braun-Blanquet J.	1961	44	2	11.2493	47.2751	10
8	(Teucrio-Caricetum humilis)	AT	425150	Braun-Blanquet J.	1961	44	3	10.75971	47.2208	7
8	(Teucrio-Caricetum humilis)	AT	425151	Braun-Blanquet J.	1961	44	4	11.2392	47.2778	10
8	(Teucrio-Caricetum humilis)	AT	425152	Braun-Blanquet J.	1961	44	5	10.57256	47.15738	5
8	(Teucrio-Caricetum humilis)	AT	425153	Braun-Blanquet J.	1961	44	6	11.16178	47.29183	10
8	(Teucrio-Caricetum humilis)	AT	425154	Braun-Blanquet J.	1961	44	7	11.2404	47.2777	10
8	(Teucrio-Caricetum humilis)	AT	425155	Braun-Blanquet J.	1961	44	8	11.2655	47.2691	21
8	(Teucrio-Caricetum humilis)	AT	425156	Braun-Blanquet J.	1961	p.202		10.8976	47.2048	7
8	(Teucrio-Caricetum humilis)	AT	425212	Weber J.	1981	p.354	341	10.97852	47.29	7
8	(Teucrio-Caricetum humilis)	AT	425215	Weber J.	1981	p.354	344	10.97773	47.28935	7
8	(Teucrio-Caricetum humilis)	AT	426723	Hölzel N.	1996	4	20	10.9467	47.27591	10
8	(Teucrio-Caricetum humilis)	AT	426724	Hölzel N.	1996	4	21	10.9467	47.27591	10
8	(Teucrio-Caricetum humilis)	AT	426725	Hölzel N.	1996	4	22	10.9467	47.27591	10
8	(Teucrio-Caricetum humilis)	AT	426726	Hölzel N.	1996	4	23	10.9467	47.27591	5
8	(Teucrio-Caricetum humilis)	AT	426727	Hölzel N.	1996	4	24	10.78387	47.21346	31
8	(Teucrio-Caricetum humilis)	AT	426728	Hölzel N.	1996	4	25	10.78387	47.21346	7
8	(Teucrio-Caricetum humilis)	AT	426729	Hölzel N.	1996	4	26	10.78387	47.21346	7
8	(Teucrio-Caricetum humilis)	AT	426730	Hölzel N.	1996	4	27	10.78387	47.21346	5
8	(Teucrio-Caricetum humilis)	AT	426731	Hölzel N.	1996	4	28	10.78387	47.21346	5
8	(Teucrio-Caricetum humilis)	AT	426732	Hölzel N.	1996	4	29	10.78387	47.21346	5
8	(Teucrio-Caricetum humilis)	AT	426733	Hölzel N.	1996	4	30	10.96943	47.28314	5
8	(Teucrio-Caricetum humilis)	AT	426734	Hölzel N.	1996	4	31	10.96943	47.28314	5
8	(Teucrio-Caricetum humilis)	AT	426735	Hölzel N.	1996	4	32	10.96943	47.28314	19
8	(Teucrio-Caricetum humilis)	AT	426736	Hölzel N.	1996	4	33	10.96943	47.28314	7
8	(Teucrio-Caricetum humilis)	AT	426737	Hölzel N.	1996	4	34	10.96943	47.28314	19
8	(Teucrio-Caricetum humilis)	AT	426738	Hölzel N.	1996	4	35	10.96943	47.28314	31
8	(Teucrio-Caricetum humilis)	AT	427121	Wallnöfer S. et al.	2008	2	15	11.2393	47.27789	21
8	(Teucrio-Caricetum humilis)	AT	427122	Wallnöfer S. et al.	2008	2	16	11.2393	47.27789	7
9	Achnathero-Stipetum	AT	376003	W. Willner	ined.			11.26904	47.26939	31
9	Achnathero-Stipetum	AT	376009	W. Willner	ined.			10.76384	47.21179	19
9	Achnathero-Stipetum	AT	376012	W. Willner	ined.			10.91798	47.27308	31
9	Achnathero-Stipetum	AT	376013	W. Willner	ined.			10.91895	47.2725	31
9	Achnathero-Stipetum	AT	376062	G. Kadlec	ined.			12.6807	47.58199	23
9	Achnathero-Stipetum	AT	416433	Smettan H.W.	1981	115	603	12.2768	47.5515	24
9	Achnathero-Stipetum	AT	416434	Smettan H.W.	1981	115	469	12.21761	47.60787	24
9	Achnathero-Stipetum	AT	416435	Smettan H.W.	1981	115	390	12.19112	47.54037	23
9	Achnathero-Stipetum	AT	421618	Weber J.	1981	p241	194	10.97524	47.28557	21
9	Achnathero-Stipetum	AT	421619	Weber J.	1981	p241	195	10.97566	47.28404	31
9	Achnathero-Stipetum	AT	425135	Kielhauser G. E.	1954	2	4	10.75867	47.21968	5
9	Achnathero-Stipetum	AT	425136	Kielhauser G. E.	1954	2	5	10.63321	47.04259	5
9	Achnathero-Stipetum	AT	425213	Weber J.	1981	p.354	342	10.97587	47.28502	31
9	Achnathero-Stipetum	AT	425214	Weber J.	1981	p.354	343	10.97524	47.28557	31
9	Achnathero-Stipetum	AT	426704	Hölzel N.	1996	4	1	10.60567	47.17593	31
9	Achnathero-Stipetum	AT	426705	Hölzel N.	1996	4	2	10.60567	47.17593	31
9	Achnathero-Stipetum	AT	426706	Hölzel N.	1996	4	3	10.60567	47.17593	31
9	Achnathero-Stipetum	AT	426707	Hölzel N.	1996	4	4	10.60567	47.17593	23
9	Achnathero-Stipetum	AT	426708	Hölzel N.	1996	4	5	10.60567	47.17593	31
9	Achnathero-Stipetum	AT	426709	Hölzel N.	1996	4	6	10.60567	47.17593	23
9	Achnathero-Stipetum	AT	426710	Hölzel N.	1996	4	7	10.60567	47.17593	23
9	Achnathero-Stipetum	AT	426711	Hölzel N.	1996	4	8	11.25515	47.27393	23
9	Achnathero-Stipetum	AT	426712	Hölzel N.	1996	4	9	11.25515	47.27393	23
9	Achnathero-Stipetum	AT	426713	Hölzel N.	1996	4	10	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426714	Hölzel N.	1996	4	11	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426715	Hölzel N.	1996	4	12	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426716	Hölzel N.	1996	4	13	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426717	Hölzel N.	1996	4	14	11.25053	47.27497	31
9	Achnathero-Stipetum	AT	426718	Hölzel N.	1996	4	15	11.25053	47.27497	31
9	Achnathero-Stipetum	AT	426719	Hölzel N.	1996	4	16	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426720	Hölzel N.	1996	4	17	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426721	Hölzel N.	1996	4	18	10.92035	47.27303	31
9	Achnathero-Stipetum	AT	426722	Hölzel N.	1996	4	19	10.92035	47.27303	5
9	Achnathero-Stipetum	AT	444856	Kaiser R. et Eberle T.	ined.			12.5888	47.227133	62
10	Sileno hayekianae-Seslerietum	AT	376046	G. Kadlec	ined.			13.7187	46.69235	23
10	Sileno hayekianae-Seslerietum	AT	376047	G. Kadlec	ined.			13.72198	46.69076	18
10	Sileno hayekianae-Seslerietum	AT	376050	G. Kadlec	ined.			13.2389	46.92618	11
10	Sileno hayekianae-Seslerietum	AT	376051	G. Kadlec	ined.			13.18354	46.94049	11

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
12	Koelerio-Poetum xerophilae	CH	426775	Braun-Blanquet J.	1961	42	10	10.09127	46.76492	14
12	Koelerio-Poetum xerophilae	CH	426780	Braun-Blanquet J.	1961	42	15	10.11391	46.76971	14
12	Koelerio-Poetum xerophilae	CH	426781	Braun-Blanquet J.	1961	42	16	10.1012	46.69752	14
12	Koelerio-Poetum xerophilae	CH	426782	Braun-Blanquet J.	1961	42	17	10.10092	46.69811	14
12	Koelerio-Poetum xerophilae	CH	426783	Braun-Blanquet J.	1961	42	18	10.03618	46.65336	14
12	Koelerio-Poetum xerophilae	CH	426784	Braun-Blanquet J.	1961	42	19	10.10709	46.76882	14
12	Koelerio-Poetum xerophilae	CH	426788	Braun-Blanquet J.	1961	42	23	10.15399	46.77317	14
13	Koelerio-Teucrietum montani	AT	376014	W. Willner	ined.			11.52813	47.01498	23
13	Koelerio-Teucrietum montani	AT	376049	G. Kadlec	ined.			12.8334	47.04453	15
13	Koelerio-Teucrietum montani	AT	425106	Mucina L. & Kolbek J.	1993	p.469		12.4666	47.00839	16
13	Koelerio-Teucrietum montani	AT	426419	Wagner H.	1985	1	3	12.42912	47.00903	42
13	Koelerio-Teucrietum montani	AT	426420	Wagner H.	1985	1	4	12.41128	47.01609	42
13	Koelerio-Teucrietum montani	AT	426421	Wagner H.	1985	1	5	12.42301	47.00479	42
13	Koelerio-Teucrietum montani	AT	426422	Wagner H.	1985	1	6	12.42792	47.00666	42
13	Koelerio-Teucrietum montani	AT	426423	Wagner H.	1985	1	7	12.42201	47.00504	42
13	Koelerio-Teucrietum montani	AT	426424	Wagner H.	1985	1	8	12.40991	47.01867	42
13	Koelerio-Teucrietum montani	AT	426426	Wagner H.	1985	1	11	12.34022	47.02013	42
13	Koelerio-Teucrietum montani	AT	426427	Wagner H.	1985	1	12	12.33096	47.01722	42
13	Koelerio-Teucrietum montani	AT	426428	Wagner H.	1985	1	14	12.33485	47.0237	42
13	Koelerio-Teucrietum montani	AT	426455	Magnes M. et al.	2021	S2	13	12.43427	47.00571	20
13	Koelerio-Teucrietum montani	AT	426456	Magnes M. et al.	2021	S2	11	12.43438	47.00566	16
13	Koelerio-Teucrietum montani	AT	426469	Magnes M. et al.	2021	S2	12	12.43437	47.00611	16
13	Koelerio-Teucrietum montani	AT	426482	Magnes M. et al.	2021	S2	14	12.43484	47.00577	16
13	Koelerio-Teucrietum montani	AT	426495	Magnes M. et al.	2021	S2	10	12.434006	47.006596	16
13	Koelerio-Teucrietum montani	AT	426541	W. Franz	ined.			12.8329	47.0444	41
13	Koelerio-Teucrietum montani	AT	426551	W. Franz	ined.			12.8329	47.0444	41
13	Koelerio-Teucrietum montani	AT	426552	W. Franz	ined.			12.8329	47.0444	15
13	Koelerio-Teucrietum montani	AT	426553	W. Franz	ined.			12.8329	47.0444	23
13	Koelerio-Teucrietum montani	AT	427002	Rouschal E.	1989		2	13.47099	47.11205	15
13	Koelerio-Teucrietum montani	AT	427005	Rouschal E.	1989		5	13.51848	47.09778	15
13	Koelerio-Teucrietum montani	AT	427006	Rouschal E.	1989		6	13.56196	47.08644	42
13	Koelerio-Teucrietum montani	AT	427007	Rouschal E.	1989		7	13.56324	47.08653	42
13	Koelerio-Teucrietum montani	AT	427008	Rouschal E.	1989		8	13.54895	47.09039	42
13	Koelerio-Teucrietum montani	AT	427009	Rouschal E.	1989		9	13.53211	47.09484	15
13	Koelerio-Teucrietum montani	AT	427010	Rouschal E.	1989		10	13.46319	47.11501	15
13	Koelerio-Teucrietum montani	AT	427011	Rouschal E.	1989		11	13.45703	47.1148	15
13	Koelerio-Teucrietum montani	AT	427012	Rouschal E.	1989		12	13.46775	47.11177	15
13	Koelerio-Teucrietum montani	AT	427013	Rouschal E.	1989		13	13.49091	47.16193	15
13	Koelerio-Teucrietum montani	AT	427014	Rouschal E.	1989		14	13.48682	47.16259	41
13	Koelerio-Teucrietum montani	AT	427015	Rouschal E.	1989		15	13.48592	47.16318	42
13	Koelerio-Teucrietum montani	AT	427016	Rouschal E.	1989		16	13.46949	47.11188	42
13	Koelerio-Teucrietum montani	AT	427017	Rouschal E.	1989		17	13.47323	47.1113	15
13	Koelerio-Teucrietum montani	AT	427018	Rouschal E.	1989		18	13.47049	47.11264	15
13	Koelerio-Teucrietum montani	AT	427019	Rouschal E.	1989		19	13.54508	47.13659	20
13	Koelerio-Teucrietum montani	AT	427020	Rouschal E.	1989		20	13.51645	47.09713	20
13	Koelerio-Teucrietum montani	AT	427021	Rouschal E.	1989		21	13.52001	47.09655	15
13	Koelerio-Teucrietum montani	AT	427022	Rouschal E.	1989		22	13.55097	47.09009	20
13	Koelerio-Teucrietum montani	AT	427025	Rouschal E.	1989		25	13.5142	47.09961	15
13	Koelerio-Teucrietum montani	AT	427026	Rouschal E.	1989		26	13.55894	47.08776	20
13	Koelerio-Teucrietum montani	AT	427027	Rouschal E.	1989		27	13.47166	47.10997	15
13	Koelerio-Teucrietum montani	AT	427028	Rouschal E.	1989		28	13.47023	47.11192	42
13	Koelerio-Teucrietum montani	AT	427029	Rouschal E.	1989		29	13.44856	47.1146	15
13	Koelerio-Teucrietum montani	AT	427030	Rouschal E.	1989		30	13.48628	47.10426	15
13	Koelerio-Teucrietum montani	AT	427031	Rouschal E.	1989		31	13.43739	47.11419	20
13	Koelerio-Teucrietum montani	AT	427032	Rouschal E.	1989		32	13.47658	47.10744	15
13	Koelerio-Teucrietum montani	AT	427033	Rouschal E.	1989		33	13.57834	47.08201	15
13	Koelerio-Teucrietum montani	AT	427034	Rouschal E.	1989		34	13.47243	47.10981	15
13	Koelerio-Teucrietum montani	AT	427035	Rouschal E.	1989		35	13.48159	47.10525	15
13	Koelerio-Teucrietum montani	AT	427036	Rouschal E.	1989		36	13.46169	47.11584	15
13	Koelerio-Teucrietum montani	AT	427037	Rouschal E.	1989		37	13.47182	47.10883	15
13	Koelerio-Teucrietum montani	AT	427038	Rouschal E.	1989		38	13.51678	47.09672	15
13	Koelerio-Teucrietum montani	AT	427039	Rouschal E.	1989		39	13.5174	47.09659	15
13	Koelerio-Teucrietum montani	AT	427040	Rouschal E.	1989		40	13.4761	47.11047	15
13	Koelerio-Teucrietum montani	AT	427041	Rouschal E.	1989		41	13.50032	47.10051	15
13	Koelerio-Teucrietum montani	AT	427042	Rouschal E.	1989		42	13.48487	47.10594	20
13	Koelerio-Teucrietum montani	AT	427043	Rouschal E.	1989		43	13.48642	47.10597	15
13	Koelerio-Teucrietum montani	AT	427044	Rouschal E.	1989		44	13.49577	47.10369	20
13	Koelerio-Teucrietum montani	AT	427045	Rouschal E.	1989		45	13.46958	47.11161	15
13	Koelerio-Teucrietum montani	AT	427046	Rouschal E.	1989		46	13.49782	47.10287	15
13	Koelerio-Teucrietum montani	AT	427047	Rouschal E.	1989		47	13.50928	47.09668	15
13	Koelerio-Teucrietum montani	AT	427053	Rouschal E.	1989		53	13.48285	47.10656	42
13	Koelerio-Teucrietum montani	AT	444834	Kaiser R. et Eberle T.				12.524864	47.024807	15
13	Koelerio-Teucrietum montani	AT	448002	Franz W.	1979	1	2	12.46479	47.00721	19
13	Koelerio-Teucrietum montani	AT	448003	Franz W.	1979	1	3	12.50481	46.99617	16
13	Koelerio-Teucrietum montani	AT	448004	Franz W.	1979	1	4	12.85046	47.03885	15
13	Koelerio-Teucrietum montani	AT	448008	Franz W.	1979	1	8	12.84532	47.04013	16
13	Koelerio-Teucrietum montani	AT	448011	Franz W.	1979	1	11	12.84538	47.04022	41
13	Koelerio-Teucrietum montani	AT	448012	Franz W.	1979	1	12	12.84538	47.04022	23
13	Koelerio-Teucrietum montani	AT	448013	Franz W.	1979	1	13	13.59938	47.19463	23
13	Koelerio-Teucrietum montani	AT	448014	Franz W.	1979	1	14	12.46668	47.00866	41
13	Koelerio-Teucrietum montani	AT	448016	Franz W.	1979	1	16	12.46668	47.00866	41
13	Koelerio-Teucrietum montani	AT	448017	Franz W.	1979	1	17	12.46668	47.00866	16
13	Koelerio-Teucrietum montani	AT	448018	Franz W.	1979	1	18	12.42775	47.00472	16
13	Koelerio-Teucrietum montani	AT	448019	Franz W.	1979	1	19	12.42775	47.00472	23
13	Koelerio-Teucrietum montani	AT	448040	Franz W.	1979	1	40	13.2419	46.92609	10
13	Koelerio-Teucrietum montani	AT	448043	Franz W.	1979	1	43	12.45848	47.00752	16
13	Koelerio-Teucrietum montani	AT	448044	Franz W.	1979	1	44	13.18316	46.94064	12
13	Koelerio-Teucrietum montani	AT	448045	Franz W.	1979	1	45	13.18316	46.94064	12
13	Koelerio-Teucrietum montani	AT	448046	Franz W.	1979	1	46	12.90737	46.93051	15
13	Koelerio-Teucrietum montani	AT	448047	Franz W.	1979	1	47	12.90737	46.93051	15
13	Koelerio-Teucrietum montani	AT	448048	Franz W.	1979	1	48	13.57617	47.08135	15
13	Koelerio-Teucrietum montani	AT	448049	Franz W.	1979	1	49	13.57617	47.08135	20
13	Koelerio-Teucrietum montani	AT	448050	Franz W.	1979	1	50	13.04966	46.89137	15
13	Koelerio-Teucrietum montani	AT	448126	Franz W.	1979	1	126	13.28093	46.88793	12
14	Armerio-Potentillietum arenariae	AT	376018	W. Willner	ined.			15.31945	47.34568	17
14	Armerio-Potentillietum arenariae	AT	376065	G. Kadlec	ined.			14.92199	47.28275	17
14	Armerio-Potentillietum arenariae	AT	425196	Braun-Blanquet J.	1961	p.253	1	14.92929	47.28394	17
14	Armerio-Potentillietum arenariae	AT	425197	Braun-Blanquet J.	1961	p.253	2	14.92918	47.28257	17
14	Armerio-Potentillietum arenariae	AT	425198	Braun-Blanquet J.	1961	p.253	3	14.92875	47.28265	17
14	Armerio-Potentillietum arenariae	AT	425199	Braun-Blanquet J.	1961	p.253	4	14.92843	47.28222	17
14	Armerio-Potentillietum arenariae	AT	426439	Magnes M. et al.	2021	S2	1	14.92189	47.28271	17
14	Armerio-Potentillietum arenariae	AT	426440	Magnes M. et al.	2021	S2	2	14.92206	47.2825	17
14	Armerio-Potentillietum arenariae	AT	426441	Magnes M. et al.	2021	S2	3	14.9223	47.28289	17
14	Armerio-Potentillietum arenariae	AT	426442	Magnes M. et al.	2021	S2	4	14.92244	47.28284	17
14	Armerio-Potentillietum arenariae	AT	426514	Eggler J.	1954	4		15.328	47.3467	17
14	Armerio-Potentillietum arenariae	AT	426517	Eggler J.	1955	3	1	14.9272	47.2826	17
14	Armerio-Potentillietum arenariae	AT	426518	Eggler J.	1955	3	2	14.9272	47.2826	17
14	Armerio-Potentillietum arenariae	AT	426519	Eggler J.	1955	3	3	14.9272	47.2826	17
14	Armerio-Potentillietum arenariae	AT	426520	Eggler J.	1955	3	4	14.9272	47.2826	17
14	Armerio-Potentillietum arenariae	AT	426521	Eggler J.	1955	3	5	14.9272	47.2826	17
14	Armerio-Potentillietum arenariae	AT	426522	Eggler J.	1955	3	6	14.9272	47.2826	17
15	Seselieta austriaci	AT	376039	G. Kadlec	ined.			14.56528	46.69607	19
15	Seselieta austriaci	AT	376042	G. Kadlec	ined.			14.95226	46.64176	18
15	Seselieta austriaci	AT	376045	G. Kadlec	ined.			14.72643	46.70452	19
15	Seselieta austriaci	AT	376063	G. Kadlec	ined.			15.06753	47.36536	21
15	Seselieta austri									

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
15	Seselietum austriaci	AT	448132	Franz W.	1979	1	132	14.56911	47.23051	19
15	Seselietum austriaci	AT	448133	Franz W.	1979	1	133	14.58866	47.22838	19
15	Seselietum austriaci	AT	448135	Franz W.	1979	1	135	14.41592	46.95558	19
15	Seselietum austriaci	AT	448136	Franz W.	1979	1	136	14.53478	46.7287	18
15	Seselietum austriaci	AT	448137	Franz W.	1979	1	137	14.53478	46.7287	18
15	Seselietum austriaci	AT	448138	Franz W.	1979	1	138	14.5655	46.69545	19
15	Seselietum austriaci	AT	448142	Franz W.	1979	1	142	14.45242	46.75531	18
15	Seselietum austriaci	AT	448143	Franz W.	1979	1	143	14.45242	46.75531	18
15	Seselietum austriaci	AT	448144	Franz W.	1979	1	144	14.45242	46.75531	18
15	Seselietum austriaci	AT	448145	Franz W.	1979	1	145	14.45242	46.75531	18
15	Seselietum austriaci	AT	448146	Franz W.	1979	1	146	14.58453	47.23326	18
15	Seselietum austriaci	AT	448147	Franz W.	1979	1	147	14.58453	47.23326	18
15	Seselietum austriaci	AT	448148	Franz W.	1979	1	148	14.58453	47.23326	18
15	Seselietum austriaci	AT	448149	Franz W.	1979	1	149	14.34251	47.13684	18
15	Seselietum austriaci	AT	448150	Franz W.	1979	1	150	14.34251	47.13684	19
15	Seselietum austriaci	AT	448151	Franz W.	1979	1	151	14.34251	47.13684	18
15	Seselietum austriaci	AT	448152	Franz W.	1979	1	152	14.34251	47.13684	19
15	Seselietum austriaci	AT	448154	Franz W.	1979	1	154	14.58453	47.23326	18
15	Seselietum austriaci	AT	448155	Franz W.	1979	1	155	14.58453	47.23326	18
15	Seselietum austriaci	AT	448156	Franz W.	1979	1	156	14.58453	47.23326	18
15	Seselietum austriaci	AT	448157	Franz W.	1979	1	157	14.58453	47.23326	18
15	Seselietum austriaci	AT	448158	Franz W.	1979	1	158	14.58453	47.23326	18
15	Seselietum austriaci	AT	448163	Franz W.	1979	1	163	14.59364	46.69251	18
15	Seselietum austriaci	AT	448164	Franz W.	1979	1	164	14.59364	46.69251	18
15	Seselietum austriaci	AT	448165	Franz W.	1979	1	165	14.4341	46.9503	18
15	Seselietum austriaci	AT	448166	Franz W.	1979	1	166	14.4341	46.9503	18
15	Seselietum austriaci	AT	448167	Franz W.	1979	1	167	14.43304	46.95051	19
15	Seselietum austriaci	AT	448168	Franz W.	1979	1	168	14.43304	46.95051	19
15	Seselietum austriaci	AT	448215	Franz W.	1979	1	215	14.95243	46.64446	18
15	Seselietum austriaci	AT	448216	Franz W.	1979	1	216	14.95243	46.64446	18
15	Seselietum austriaci	AT	448217	Franz W.	1979	1	217	14.95243	46.64446	18
15	Seselietum austriaci	AT	448218	Franz W.	1979	1	218	14.95243	46.64446	18
15	Seselietum austriaci	AT	448219	Franz W.	1979	1	219	14.95243	46.64446	18
15	Seselietum austriaci	AT	448220	Franz W.	1979	1	220	14.42875	46.76598	18
15	Seselietum austriaci	AT	448221	Franz W.	1979	1	221	14.42906	46.76621	18
15	Seselietum austriaci	AT	448222	Franz W.	1979	1	222	14.45856	46.77642	18
15	Seselietum austriaci	AT	448223	Franz W.	1979	1	223	14.45225	46.7751	18
15	Seselietum austriaci	AT	448224	Franz W.	1979	1	224	14.55973	46.80979	18
15	Seselietum austriaci	AT	448225	Franz W.	1979	1	225	14.5603	46.81015	18
15	Seselietum austriaci	AT	448226	Franz W.	1979	1	226	14.5594	46.8118	18
15	Seselietum austriaci	AT	448227	Franz W.	1979	1	227	14.42885	46.77035	18
15	Seselietum austriaci	AT	448228	Franz W.	1979	1	228	14.42885	46.77035	18
15	Seselietum austriaci	AT	448229	Franz W.	1979	1	229	14.42885	46.77035	18
15	Seselietum austriaci	AT	448230	Franz W.	1979	1	230	14.43095	46.7685	18
15	Seselietum austriaci	AT	448231	Franz W.	1979	1	231	14.43089	46.76827	18
15	Seselietum austriaci	AT	448240	Franz W.	1979	1	240	14.60399	47.22578	19
15	Seselietum austriaci	AT	448243	Franz W.	1979	1	243	14.87254	46.68858	18
15	Seselietum austriaci	AT	448244	Franz W.	1979	1	244	14.54392	46.61073	19
15	Seselietum austriaci	AT	448245	Franz W.	1979	1	245	14.89321	46.71021	18
15	Seselietum austriaci	AT	448246	Franz W.	1979	1	246	14.54392	46.61073	18
15	Seselietum austriaci	AT	448247	Franz W.	1979	1	247	14.56554	46.69621	18
15	Seselietum austriaci	AT	448248	Franz W.	1979	1	248	14.45223	46.75508	18
15	Seselietum austriaci	AT	600274	Heber G.	2005	17	1	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600276	Heber G.	2005	17	3	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600279	Heber G.	2005	17	6	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600280	Heber G.	2005	17	7	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600281	Heber G.	2005	17	8	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600282	Heber G.	2005	17	9	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600284	Heber G.	2005	17	11	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600287	Heber G.	2005	17	14	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600293	Heber G.	2005	17	20	15.3959656	47.1124297	18
15	Seselietum austriaci	AT	600303	Heber G.	2005	17	30	15.3959656	47.1124297	19
15	Seselietum austriaci	AT	600523	Grassauer A.	2003	3	25	15.0831	47.3602	18
15	Seselietum austriaci	AT	600541	Grassauer A.	2003	3	43	15.0831	47.3602	18
15	Seselietum austriaci	AT	600542	Grassauer A.	2003	3	45	15.0831	47.3602	18
15	Seselietum austriaci	AT	600570	Grassauer A.	2003	3	76	15.0831	47.3602	18
15	Seselietum austriaci	AT	600573	Grassauer A.	2003	3	79	15.0831	47.3602	18
16	Phleo-Pulsatillum typicum	AT	376016	W. Willner	ined.			14.42959	46.77416	19
16	Phleo-Pulsatillum typicum	AT	376021	W. Willner	ined.			15.07449	47.07303	19
16	Phleo-Pulsatillum typicum	AT	376022	W. Willner	ined.			15.07627	47.07074	19
16	Phleo-Pulsatillum typicum	AT	376035	G. Kadlec	ined.			14.53486	46.72861	19
16	Phleo-Pulsatillum typicum	AT	376043	G. Kadlec	ined.			14.64404	46.68611	12
16	Phleo-Pulsatillum typicum	AT	376068	G. Kadlec	ined.			14.6056	47.22462	19
16	Phleo-Pulsatillum typicum	AT	376076	G. Kadlec	ined.			14.34846	47.13785	19
16	Phleo-Pulsatillum typicum	AT	425186	Braun-Blanquet J.	1961	59	3	14.45251	46.75426	11
16	Phleo-Pulsatillum typicum	AT	425187	Braun-Blanquet J.	1961	59	4	14.42058	46.95356	11
16	Phleo-Pulsatillum typicum	AT	425189	Braun-Blanquet J.	1961	59	6	14.42426	46.95305	19
16	Phleo-Pulsatillum typicum	AT	425190	Braun-Blanquet J.	1961	59	7	14.42334	46.95316	19
16	Phleo-Pulsatillum typicum	AT	425191	Braun-Blanquet J.	1961	59	8	14.13093	46.63746	11
16	Phleo-Pulsatillum typicum	AT	426477	Magnes M. et al.	2021	S2	7	14.60553	47.22464	19
16	Phleo-Pulsatillum typicum	AT	426480	Magnes M. et al.	2021	S2	5	14.3484	47.1379	19
16	Phleo-Pulsatillum typicum	AT	426481	Magnes M. et al.	2021	S2	6	14.34835	47.13778	19
16	Phleo-Pulsatillum typicum	AT	448029	Franz W.	1979	1	29	14.42388	46.95508	19
16	Phleo-Pulsatillum typicum	AT	448033	Franz W.	1979	1	33	14.42388	46.95508	11
16	Phleo-Pulsatillum typicum	AT	448034	Franz W.	1979	1	34	14.42388	46.95508	12
16	Phleo-Pulsatillum typicum	AT	448035	Franz W.	1979	1	35	14.38548	46.99051	19
16	Phleo-Pulsatillum typicum	AT	448037	Franz W.	1979	1	37	14.25819	46.75575	11
16	Phleo-Pulsatillum typicum	AT	448038	Franz W.	1979	1	38	14.25819	46.75575	11
16	Phleo-Pulsatillum typicum	AT	448041	Franz W.	1979	1	41	14.13145	46.63787	19
16	Phleo-Pulsatillum typicum	AT	448072	Franz W.	1979	1	72	14.41466	46.54287	11
16	Phleo-Pulsatillum typicum	AT	448082	Franz W.	1979	1	82	14.50124	47.0096	11
16	Phleo-Pulsatillum typicum	AT	448084	Franz W.	1979	1	84	14.5687	47.23082	19
16	Phleo-Pulsatillum typicum	AT	448088	Franz W.	1979	1	88	14.49758	47.21005	11
16	Phleo-Pulsatillum typicum	AT	448097	Franz W.	1979	1	97	14.57694	47.2233	19
16	Phleo-Pulsatillum typicum	AT	448099	Franz W.	1979	1	99	14.29674	46.70092	19
16	Phleo-Pulsatillum typicum	AT	448103	Franz W.	1979	1	103	14.95267	46.64509	19
16	Phleo-Pulsatillum typicum	AT	448106	Franz W.	1979	1	106	14.88566	46.6672	19
16	Phleo-Pulsatillum typicum	AT	448108	Franz W.	1979	1	108	14.58866	47.22838	19
16	Phleo-Pulsatillum typicum	AT	448109	Franz W.	1979	1	109	14.58866	47.22838	19
16	Phleo-Pulsatillum typicum	AT	448110	Franz W.	1979	1	110	14.58866	47.22838	19
16	Phleo-Pulsatillum typicum	AT	448111	Franz W.	1979	1	111	14.54379	46.61068	11
16	Phleo-Pulsatillum typicum	AT	448113	Franz W.	1979	1	113	14.54379	46.61068	12
16	Phleo-Pulsatillum typicum	AT	448114	Franz W.	1979	1	114	14.54379	46.61068	12
16	Phleo-Pulsatillum typicum	AT	448115	Franz W.	1979	1	115	14.64444	46.68603	12
16	Phleo-Pulsatillum typicum	AT	448116	Franz W.	1979	1	116	14.63839	46.68711	12
16	Phleo-Pulsatillum typicum	AT	448117	Franz W.	1979	1	117	14.63839	46.68711	19
16	Phleo-Pulsatillum typicum	AT	448118	Franz W.	1979	1	118	14.64444	46.68603	12
16	Phleo-Pulsatillum typicum	AT	448122	Franz W.	1979	1	122	14.64444	46.68603	12
16	Phleo-Pulsatillum typicum	AT	448130	Franz W.	1979	1	130	15.04051	47.39722	19
16	Phleo-Pulsatillum typicum	AT	448131	Franz W.	1979	1	131	14.56581	47.2323	19
16	Phleo-Pulsatillum typicum	AT	448134	Franz W.	1979	1	134	14.57641	47.22738	19
16	Phleo-Pulsatillum typicum	AT	448139	Franz W.	1979	1	139	14.53478	46.7287	19
16	Phleo-Pulsatillum typicum	AT	448140	Franz W.	1979	1	140	14.13152	46.63774	19
16	Phleo-Pulsatillum typicum	AT	448141	Franz W.	1979	1	141	14.45242	46.75531	19
16	Phleo-Pulsatillum typicum	AT	448153	Franz W.	1979	1	153	14.56421	47.23097	19
16	Phleo-Pulsatillum typicum	AT	448161	Franz W.	1979	1	161	14.34341	47.13744	19
16	Phleo-Pulsatillum typicum	AT	448162	Franz W.	1979	1	162	14.34341	47.13744	19
16	Phleo-Pulsatillum typicum	AT	448169</							

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
18	Teucro montani-Seseliatum austriaci	AT	425233	Hametner S.	1991	p.101	51	15.09272	47.92925	21
18	Teucro montani-Seseliatum austriaci	AT	425234	Hametner S.	1991	p.101	53	15.09233	47.92878	21
18	Teucro montani-Seseliatum austriaci	AT	434381	M. Staudinger	ined.			13.521199	47.790599	21
18	Teucro montani-Seseliatum austriaci	AT	434560	M. Staudinger	ined.			13.428176	47.754269	21
18	Teucro montani-Seseliatum austriaci	AT	444855	Kaiser R. et Eberle T.				14.372364	47.924212	22
18	Teucro montani-Seseliatum austriaci	AT	445181	M. Staudinger	ined.			14.471886	47.874929	21
19	Drabo aizoidis-Seslerietum	AT	307001	Niklfeld H.	1964	p.173		16.025	47.8083	22
19	Drabo aizoidis-Seslerietum	AT	307120	Karrer G.	1985	1	1	16.21907115	48.10155635	22
19	Drabo aizoidis-Seslerietum	AT	307121	Karrer G.	1985	1	2	16.21907115	48.10155635	22
19	Drabo aizoidis-Seslerietum	AT	307122	Karrer G.	1985	1	3	16.21907115	48.10155635	22
19	Drabo aizoidis-Seslerietum	AT	307123	Karrer G.	1985	1	4	16.27622366	48.08210727	21
19	Drabo aizoidis-Seslerietum	AT	307124	Karrer G.	1985	1	5	16.27622366	48.08210727	21
19	Drabo aizoidis-Seslerietum	AT	307597	Karrer G.	1985	2	8	16.049373	48.014544	30
19	Drabo aizoidis-Seslerietum	AT	307598	Karrer G.	1985	2	9	16.049373	48.014544	21
19	Drabo aizoidis-Seslerietum	AT	307599	Karrer G.	1985	2	10	16.049373	48.014544	22
19	Drabo aizoidis-Seslerietum	AT	307600	Karrer G.	1985	2	11	16.049373	48.014544	21
19	Drabo aizoidis-Seslerietum	AT	307601	Karrer G.	1985	2	12	16.049373	48.014544	22
19	Drabo aizoidis-Seslerietum	AT	307602	Karrer G.	1985	2	13	16.049373	48.014544	21
19	Drabo aizoidis-Seslerietum	AT	307603	Karrer G.	1985	2	14	16.049373	48.014544	22
19	Drabo aizoidis-Seslerietum	AT	308042	Klika J.	1931		30	0	0	30
19	Drabo aizoidis-Seslerietum	AT	318692	M. A. Fischer	ined.			16.228611	48.120278	22
19	Drabo aizoidis-Seslerietum	AT	426270	Zimmermann A.	1972	8	3	16.03900909	47.89217589	21
19	Drabo aizoidis-Seslerietum	AT	444196	Kaiser R. et Eberle T.				16.05557	47.83525	22
19	Drabo aizoidis-Seslerietum	AT	444199	Kaiser R. et Eberle T.				16.05856	47.83578	37
19	Drabo aizoidis-Seslerietum	AT	444201	Kaiser R. et Eberle T.				16.05879	47.83615	22
19	Drabo aizoidis-Seslerietum	AT	444208	Kaiser R. et Eberle T.				16.04838	47.82918	22
19	Drabo aizoidis-Seslerietum	AT	444210	Kaiser R. et Eberle T.				16.05879	47.83548	22
19	Drabo aizoidis-Seslerietum	AT	444212	Kaiser R. et Eberle T.				16.05068	47.83103	22
19	Drabo aizoidis-Seslerietum	AT	444218	Kaiser R. et Eberle T.				16.05598	47.83401	22
19	Drabo aizoidis-Seslerietum	AT	444226	Kaiser R. et Eberle T.				16.04915	47.83026	22
19	Drabo aizoidis-Seslerietum	AT	444227	Kaiser R. et Eberle T.				16.04914	47.8302	22
19	Drabo aizoidis-Seslerietum	AT	444228	Kaiser R. et Eberle T.				16.04915	47.83017	22
19	Drabo aizoidis-Seslerietum	AT	444232	Kaiser R. et Eberle T.				16.01368	47.811	22
19	Drabo aizoidis-Seslerietum	AT	444235	Kaiser R. et Eberle T.				16.0166	47.81097	22
19	Drabo aizoidis-Seslerietum	AT	444236	Kaiser R. et Eberle T.				16.01661	47.81116	22
19	Drabo aizoidis-Seslerietum	AT	444237	Kaiser R. et Eberle T.				16.0167	47.8113	22
19	Drabo aizoidis-Seslerietum	AT	444239	Kaiser R. et Eberle T.				16.04105	47.82431	22
19	Drabo aizoidis-Seslerietum	AT	444240	Kaiser R. et Eberle T.				16.04105	47.82434	22
19	Drabo aizoidis-Seslerietum	AT	444253	Kaiser R. et Eberle T.				16.05732	47.83457	47
19	Drabo aizoidis-Seslerietum	AT	444254	Kaiser R. et Eberle T.				16.04779	47.82912	22
20	Fumano-Stipetum eriocaulis	AT	307019	Willner W. et al.	2004		10	16.18041515	47.96109151	26
20	Fumano-Stipetum eriocaulis	AT	307021	Willner W. et al.	2004		14	16.19905114	47.93690315	29
20	Fumano-Stipetum eriocaulis	AT	307022	Willner W. et al.	2004		17	16.27403498	48.03376806	27
20	Fumano-Stipetum eriocaulis	AT	307053	Wagner H.	1941	1	2	16.22496128	48.11742762	30
20	Fumano-Stipetum eriocaulis	AT	307054	Wagner H.	1941	1	3	16.27178192	48.0823653	30
20	Fumano-Stipetum eriocaulis	AT	307055	Wagner H.	1941	1	4	16.27178192	48.0823653	30
20	Fumano-Stipetum eriocaulis	AT	307056	Wagner H.	1941	1	5	16.27693176	48.0794552	29
20	Fumano-Stipetum eriocaulis	AT	307057	Wagner H.	1941	1	6	16.27693176	48.0794552	29
20	Fumano-Stipetum eriocaulis	AT	307058	Wagner H.	1941	1	7	16.27693176	48.0794552	29
20	Fumano-Stipetum eriocaulis	AT	307059	Wagner H.	1941	1	8	16.27693176	48.0794552	29
20	Fumano-Stipetum eriocaulis	AT	307060	Wagner H.	1941	1	9	16.27693176	48.0794552	26
20	Fumano-Stipetum eriocaulis	AT	307061	Wagner H.	1941	1	10	16.27693176	48.0794552	30
20	Fumano-Stipetum eriocaulis	AT	307062	Wagner H.	1941	1	11	16.27693176	48.0794552	26
20	Fumano-Stipetum eriocaulis	AT	307063	Wagner H.	1941	1	12	16.25560284	48.03223991	30
20	Fumano-Stipetum eriocaulis	AT	307064	Wagner H.	1941	1	13	16.25560284	48.03223991	30
20	Fumano-Stipetum eriocaulis	AT	307065	Wagner H.	1941	1	14	16.25560284	48.03223991	30
20	Fumano-Stipetum eriocaulis	AT	307066	Wagner H.	1941	1	15	16.25324249	48.03053235	30
20	Fumano-Stipetum eriocaulis	AT	307067	Wagner H.	1941	1	16	16.25324249	48.03053235	29
20	Fumano-Stipetum eriocaulis	AT	307068	Wagner H.	1941	1	17	16.2511611	48.02995837	30
20	Fumano-Stipetum eriocaulis	AT	307069	Wagner H.	1941	1	18	16.2511611	48.02995837	29
20	Fumano-Stipetum eriocaulis	AT	307070	Wagner H.	1941	1	19	16.24058247	48.02403162	29
20	Fumano-Stipetum eriocaulis	AT	307071	Wagner H.	1941	1	20	16.23826504	48.02395987	26
20	Fumano-Stipetum eriocaulis	AT	307072	Wagner H.	1941	1	21	16.22828722	48.01382684	29
20	Fumano-Stipetum eriocaulis	AT	307073	Wagner H.	1941	1	22	16.22178555	48.01664735	29
20	Fumano-Stipetum eriocaulis	AT	307074	Wagner H.	1941	1	23	16.22178555	48.01664735	29
20	Fumano-Stipetum eriocaulis	AT	307075	Wagner H.	1941	1	24	16.19228125	47.96342639	29
20	Fumano-Stipetum eriocaulis	AT	307077	Wagner H.	1941	1	26	0	0	29
20	Fumano-Stipetum eriocaulis	AT	307078	Wagner H.	1941	1	27	0	0	29
20	Fumano-Stipetum eriocaulis	AT	307082	Wagner H.	1941	1	31	16.22799754	48.11989509	29
20	Fumano-Stipetum eriocaulis	AT	307083	Wagner H.	1941	1	32	16.26903534	48.04571187	26
20	Fumano-Stipetum eriocaulis	AT	307084	Wagner H.	1941	1	33	16.29326105	48.0635973	29
20	Fumano-Stipetum eriocaulis	AT	307128	Karrer G.	1985	1	10	16.27085	48.08239	30
20	Fumano-Stipetum eriocaulis	AT	307154	Karrer G.	1985	2	21	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307155	Karrer G.	1985	2	22	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307156	Karrer G.	1985	2	23	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307157	Karrer G.	1985	2	24	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307158	Karrer G.	1985	2	25	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307159	Karrer G.	1985	2	26	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307160	Karrer G.	1985	2	27	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307161	Karrer G.	1985	2	28	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307162	Karrer G.	1985	2	29	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307163	Karrer G.	1985	2	30	16.1599	47.9747	30
20	Fumano-Stipetum eriocaulis	AT	307408	Six U.	1986	1	43	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307412	Six U.	1986	1	50	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307414	Six U.	1986	1	48	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307417	Six U.	1986	1	4	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307418	Six U.	1986	1	38	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307420	Six U.	1986	1	37	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307421	Six U.	1986	1	42	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307423	Six U.	1986	1	45	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307424	Six U.	1986	1	62	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307425	Six U.	1986	1	97	16.2512	48.1253	29
20	Fumano-Stipetum eriocaulis	AT	307543	Willner W. et al.	2013	3	1	16.25122547	48.03005164	30
20	Fumano-Stipetum eriocaulis	AT	307544	Willner W. et al.	2013	3	2	16.25122547	48.03005164	30
20	Fumano-Stipetum eriocaulis	AT	307548	Willner W. et al.	2013	3	3	16.25326395	48.03047495	30
20	Fumano-Stipetum eriocaulis	AT	307549	Willner W. et al.	2013	3	4	16.25326395	48.03047495	30
20	Fumano-Stipetum eriocaulis	AT	307550	Willner W. et al.	2013	3	18	16.25326395	48.03047495	30
20	Fumano-Stipetum eriocaulis	AT	307554	Willner W. et al.	2013	3	5	16.23960614	48.02345039	30
20	Fumano-Stipetum eriocaulis	AT	307555	Willner W. et al.	2013	3	6	16.23960614	48.02345039	29
20	Fumano-Stipetum eriocaulis	AT	307557	Willner W. et al.	2013	3	7	16.24061465	48.02418949	29
20	Fumano-Stipetum eriocaulis	AT	307558	Willner W. et al.	2013	3	8	16.24061465	48.02418949	30
20	Fumano-Stipetum eriocaulis	AT	307615	Reichenberger G.	1990	1	1	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307616	Reichenberger G.	1990	1	2	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307617	Reichenberger G.	1990	1	3	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307618	Reichenberger G.	1990	1	4	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307619	Reichenberger G.	1990	1	5	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307620	Reichenberger G.	1990	1	6	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	307621	Reichenberger G.	1990	1	7	16.255731	48.032282	30
20	Fumano-Stipetum eriocaulis	AT	312744	Seger M.	1976			16.29222	48.06278	27
20	Fumano-Stipetum eriocaulis	AT	318358	Mann M.	1997	13	22	16.2493636	48.0407171	30
20	Fumano-Stipetum eriocaulis	AT	318359	Mann M.	1997	13	17	16.2199608	48.0489511	30
20	Fumano-Stipetum eriocaulis	AT	335246	Willner W. et al.	2013	3	12	16.1924096	47.9633746	29
20	Fumano-Stipetum eriocaulis	AT	335248	Willner W. et al.	2013	3	13	16.2517624	48.1250343	29
20	Fumano-Stipetum eriocaulis	AT	335255	Willner W. et al.	2013	3	1			

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
21	Scorzonero-Caricetum humilis	AT	307459	Six U.	1986	2	83	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307460	Six U.	1986	2	26	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307461	Six U.	1986	2	84	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307463	Six U.	1986	2	95	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307464	Six U.	1986	2	52	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307465	Six U.	1986	2	57	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307466	Six U.	1986	2	81	16.2512	48.1253	36
21	Scorzonero-Caricetum humilis	AT	307469	Six U.	1986	2	36	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307470	Six U.	1986	2	32	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307471	Six U.	1986	2	25	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307472	Six U.	1986	2	85	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307473	Six U.	1986	2	19	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307474	Six U.	1986	2	24	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307478	Six U.	1986	3	78	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307479	Six U.	1986	3	79	16.2512	48.1253	29
21	Scorzonero-Caricetum humilis	AT	307483	Six U.	1986	4	59	16.2512	48.1253	35
21	Scorzonero-Caricetum humilis	AT	307524	Wendelberger G.	1953		14	16.25013113	48.12245196	35
21	Scorzonero-Caricetum humilis	AT	307546	Willner W. et al.	2013	3	16	16.25122547	48.03005164	29
21	Scorzonero-Caricetum humilis	AT	307551	Willner W. et al.	2013	3	19	16.25326395	48.03047495	29
21	Scorzonero-Caricetum humilis	AT	307632	Reichenberger G.	1990	1	18	16.25719	48.036257	28
21	Scorzonero-Caricetum humilis	AT	312749	Seger M.	1976		6	16.29222	48.06278	38
21	Scorzonero-Caricetum humilis	AT	312775	Rathmayer E.	1985	2	29	16.29222	48.06278	27
21	Scorzonero-Caricetum humilis	AT	312777	Rathmayer E.	1985	2	53	16.29222	48.06278	38
21	Scorzonero-Caricetum humilis	AT	318218	Zeugswetter M.	2013			16.25675	48.03662	27
21	Scorzonero-Caricetum humilis	AT	318361	Mann M.	1997	13	12	16.2138796	48.0513133	36
21	Scorzonero-Caricetum humilis	AT	318362	Mann M.	1997	13	28	16.2184702	48.0582577	27
21	Scorzonero-Caricetum humilis	AT	335245	Willner W. et al.	2013	4	9	16.1801494	47.9613367	26
21	Scorzonero-Caricetum humilis	AT	335247	Willner W. et al.	2013	3	20	16.252522	48.124876	35
21	Scorzonero-Caricetum humilis	AT	335250	Willner W. et al.	2013	3	21	16.2510968	48.125717	35
21	Scorzonero-Caricetum humilis	AT	335251	Willner W. et al.	2013	4	11	16.2510485	48.1262253	36
21	Scorzonero-Caricetum humilis	AT	335252	Willner W. et al.	2013	3	14	16.2495748	48.1276065	35
21	Scorzonero-Caricetum humilis	AT	335256	Willner W. et al.	2013	3	22	16.2506724	48.1240325	35
21	Scorzonero-Caricetum humilis	AT	335260	Willner W. et al.	2013	3	23	16.251411	48.1222378	35
21	Scorzonero-Caricetum humilis	AT	335262	Willner W. et al.	2013	3	24	16.2534742	48.1230178	35
21	Scorzonero-Caricetum humilis	AT	335263	Willner W. et al.	2013	3	25	16.2525488	48.1229535	35
21	Scorzonero-Caricetum humilis	AT	340739	M. Staudinger	ined.			16.22581959	48.10339768	27
21	Scorzonero-Caricetum humilis	AT	343305	M. Staudinger	ined.			16.22258	48.1034	27
21	Scorzonero-Caricetum humilis	AT	360082	Lambropoulos M.	2011	W1-6		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360083	Lambropoulos M.	2011	W1-7		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360084	Lambropoulos M.	2011	W1-8		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360085	Lambropoulos M.	2011	W1-3		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360086	Lambropoulos M.	2011	W1-2		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360087	Lambropoulos M.	2011	W1-1		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360088	Lambropoulos M.	2011	W1-5		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360089	Lambropoulos M.	2011	W1-4		16.16383	47.91251	33
21	Scorzonero-Caricetum humilis	AT	360090	Lambropoulos M.	2011	H1-1		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360091	Lambropoulos M.	2011	H1-2		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360092	Lambropoulos M.	2011	H1-3		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360093	Lambropoulos M.	2011	H1-4		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360094	Lambropoulos M.	2011	H1-5		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360095	Lambropoulos M.	2011	H1-6		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360096	Lambropoulos M.	2011	H1-7		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360097	Lambropoulos M.	2011	H1-8		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360114	Lambropoulos M.	2011	H1-1		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360115	Lambropoulos M.	2011	H1-2		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	360116	Lambropoulos M.	2011	H1-3		16.16383	47.91251	34
21	Scorzonero-Caricetum humilis	AT	376001	W. Willner	ined.			16.16104	47.91346	34
21	Scorzonero-Caricetum humilis	AT	376002	W. Willner	ined.			16.14503	47.82458	36
21	Scorzonero-Caricetum humilis	AT	376024	G. Kadlec	ined.			16.10793	47.87233	27
21	Scorzonero-Caricetum humilis	AT	444224	Kaiser R. et Eberle T.	ined.			16.04495	47.82902	26
22	Stipo cap.-Festucetum valesiacae	AT	307095	Wagner H.	1941	2	11	16.225	48.1083	5
22	Stipo cap.-Festucetum valesiacae	AT	307096	Wagner H.	1941	2	12	16.225	48.1083	25
22	Stipo cap.-Festucetum valesiacae	AT	335291	Willner W. et al.	2013	3	26	16.2256905	48.1032991	5
22	Stipo cap.-Festucetum valesiacae	AT	340740	M. Staudinger	ined.			16.22581959	48.10339768	25
22	Stipo cap.-Festucetum valesiacae	AT	340741	M. Staudinger	ined.			16.22581959	48.10339768	25
22	Stipo cap.-Festucetum valesiacae	AT	340742	M. Staudinger	ined.			16.22581959	48.10339768	25
22	Stipo cap.-Festucetum valesiacae	AT	341079	M. Staudinger	ined.			16.18351	48.11646	46
22	Stipo cap.-Festucetum valesiacae	AT	343306	M. Staudinger	ined.			16.22258	48.1034	25
22	Stipo cap.-Festucetum valesiacae	AT	343307	M. Staudinger	ined.			16.22258	48.1034	25
22	Stipo cap.-Festucetum valesiacae	AT	343308	M. Staudinger	ined.			16.22258	48.1034	25
22	Stipo cap.-Festucetum valesiacae	AT	365004	W. Willner	ined.		4	16.22385983	48.10291997	25
22	Stipo cap.-Festucetum valesiacae	AT	365005	W. Willner	ined.		5	16.22229992	48.10211007	46
22	Stipo cap.-Festucetum valesiacae	AT	365006	W. Willner	ined.		6	16.22617005	48.10350003	25
22	Stipo cap.-Festucetum valesiacae	AT	365011	N. Sauberer	ined.			16.09679984	47.78778997	25
22a	Medicagini-Festucetum valesiacae	AT	307091	Wagner H.	1941	2	7	16.225	48.1083	5
22a	Medicagini-Festucetum valesiacae	AT	307104	Wagner H.	1941	2	20	16.275	48.075	5
22a	Medicagini-Festucetum valesiacae	AT	307089	Wagner H.	1941	2	5	16.225	48.1083	26
22a	Medicagini-Festucetum valesiacae	AT	307090	Wagner H.	1941	2	6	16.225	48.1083	26
22a	Medicagini-Festucetum valesiacae	AT	307094	Wagner H.	1941	2	10	16.225	48.1083	26
22a	Medicagini-Festucetum valesiacae	AT	307102	Wagner H.	1941	2	18	16.175	47.9583	26
22a	Medicagini-Festucetum valesiacae	AT	365007	W. Willner	ined.			16.27111531	48.08293931	26
22a	Medicagini-Festucetum valesiacae	AT	365012	N. Sauberer	ined.			16.19910424	47.96492038	26
22a	Medicagini-Festucetum valesiacae	AT	307623	Reichenberger G.	1990	1	9	16.25463	48.03515	27
22b	Salvio nemorosae-Festucetum rupicolae	AT	307023	Willner et al.	2004		34	16.29223108	48.06029176	38
22b	Salvio nemorosae-Festucetum rupicolae	AT	312760	Rathmayer E.	1985	2	40	16.29222	48.06278	27
22b	Salvio nemorosae-Festucetum rupicolae	AT	312778	Rathmayer E.	1985	2	60	16.29222	48.06278	27
23	Potentillo pus.-Festucetum (Valtellina)	CH	426808	Braun-Blanquet J.	1961	46	1	10.12127	46.25685	7
23	Potentillo pus.-Festucetum (Valtellina)	CH	426809	Braun-Blanquet J.	1961	46	2	10.12119	46.25779	45
23	Potentillo pus.-Festucetum (Valtellina)	CH	426810	Braun-Blanquet J.	1961	46	3	10.12895	46.25951	11
23	Potentillo pus.-Festucetum (Valtellina)	CH	426811	Braun-Blanquet J.	1961	46	4	10.12895	46.25951	7
23	Potentillo pus.-Festucetum (Valtellina)	CH	426812	Braun-Blanquet J.	1961	46	5	10.09149	46.29395	44
23	Potentillo pus.-Festucetum (Valtellina)	IT	426813	Braun-Blanquet J.	1961	46	6	10.33119	46.33631	45
23	Potentillo pus.-Festucetum (Valtellina)	CH	426814	Braun-Blanquet J.	1961	46	7	10.1324	46.24563	44
23	Potentillo pus.-Festucetum (Valtellina)	CH	426815	Braun-Blanquet J.	1961	46	8	10.13308	46.24521	7
23	Potentillo pus.-Festucetum (Valtellina)	IT	426816	Braun-Blanquet J.	1961	46	9	10.27826	46.29575	44
23	Potentillo pus.-Festucetum (Valtellina)	IT	426817	Braun-Blanquet J.	1961	46	10	10.35539	46.45568	44
23	Potentillo pus.-Festucetum (Valtellina)	IT	426818	Braun-Blanquet J.	1961	46	11	10.35539	46.45568	44
23	Potentillo pus.-Festucetum (Valtellina)	CH	426819	Braun-Blanquet J.	1961	46	12	10.13919	46.23516	45
23	Potentillo pus.-Festucetum (Valtellina)	IT	426820	Braun-Blanquet J.	1961	46	13	10.2632	46.30011	7
24	Potentillo pus.-Festucetum (Engadin)	CH	426742	Braun-Blanquet J.	1961	41	4	10.36103	46.81896	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426745	Braun-Blanquet J.	1961	41	7	10.30298	46.80067	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426747	Braun-Blanquet J.	1961	41	9	10.27027	46.79331	45
24	Potentillo pus.-Festucetum (Engadin)	CH	426748	Braun-Blanquet J.	1961	41	10	10.24727	46.78846	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426749	Braun-Blanquet J.	1961	41	11	10.24727	46.78846	45
24	Potentillo pus.-Festucetum (Engadin)	CH	426750	Braun-Blanquet J.	1961	41	12	10.24717	46.79077	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426751	Braun-Blanquet J.	1961	41	13	10.20158	46.77179	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426755	Braun-Blanquet J.	1961	41	17	10.24244	46.7932	43
24	Potentillo pus.-Festucetum (Engadin)	CH	426757	Braun-Blanquet J.	1961	41	19	10.18593	46.78292	43
24	Potentillo pus.-Festucetum (Engadin)	CH	426758	Braun-Blanquet J.	1961	41	20	10.24954	46.79215	43
24	Potentillo pus.-Festucetum (Engadin)	CH	426760	Braun-Blanquet J.	1961	41	22	10.22873	46.78413	45
24	Potentillo pus.-Festucetum (Engadin)	CH	426761	Braun-Blanquet J.	1961	41	23	10.27847	46.79411	10
24	Potentillo pus.-Festucetum (Engadin)	CH	426974	Braun-Blanquet J.	1976	7	1	9.94837	46.6036	13
24	Potent									

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426430	Wagner H.	1985	1	16	12.3964	47.019	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426431	Wagner H.	1985	1	17	12.3964	47.019	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426432	Wagner H.	1985	1	18	12.39932	47.01861	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426433	Wagner H.	1985	1	19	12.44815	47.01283	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426434	Wagner H.	1985	1	20	12.37561	47.02446	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426447	Magnes M. et al.	2021	S2	44	14.60374	47.22511	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426448	Magnes M. et al.	2021	S2	47	14.60384	47.22505	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426449	Magnes M. et al.	2021	S2	57	12.44991	47.01117	54
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426450	Magnes M. et al.	2021	S2	55	12.450005	47.01158	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426451	Magnes M. et al.	2021	S2	40	14.41473	47.07707	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426452	Magnes M. et al.	2021	S2	42	14.41482	47.07702	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426457	Magnes M. et al.	2021	S2	46	14.60501	47.22461	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426458	Magnes M. et al.	2021	S2	45	14.605172	47.224548	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426473	Magnes M. et al.	2021	S2	38	14.41474	47.07688	11
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426475	Magnes M. et al.	2021	S2	41	14.41464	47.07689	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426476	Magnes M. et al.	2021	S2	48	14.6045	47.22488	46
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426478	Magnes M. et al.	2021	S2	39	14.41456	47.0772	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426479	Magnes M. et al.	2021	S2	60	12.449954	47.011873	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426484	Magnes M. et al.	2021	S2	59	12.44986	47.01182	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426492	Magnes M. et al.	2021	S2	58	12.449586	47.012001	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426496	Magnes M. et al.	2021	S2	56	12.45001	47.01182	54
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426539	Franz W.	1996		1	14.2628	46.626	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426540	Franz W.	1996		2	14.2628	46.626	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426542	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426543	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426544	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426545	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426546	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426547	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426548	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426549	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	426550	W. Franz	ined.			12.8329	47.0444	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427023	Rouschal E.	1989		23	13.51502	47.09892	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427024	Rouschal E.	1989		24	13.52035	47.09717	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427048	Rouschal E.	1989		48	13.46985	47.11244	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427049	Rouschal E.	1989		49	13.69055	47.09128	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427050	Rouschal E.	1989		50	13.51581	47.09686	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427051	Rouschal E.	1989		51	13.77757	47.12771	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427052	Rouschal E.	1989		52	13.77566	47.14634	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427054	Rouschal E.	1989		54	13.48586	47.16344	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427056	Rouschal E.	1989		56	13.47028	47.11235	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427057	Rouschal E.	1989		57	13.67956	47.09348	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427061	Rouschal E.	1989		61	13.494	47.10102	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427062	Rouschal E.	1989		62	13.50884	47.0968	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427063	Rouschal E.	1989		63	13.46926	47.11226	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427064	Rouschal E.	1989		64	13.49249	47.10187	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427071	Rouschal E.	1989		71	13.48883	47.16215	46
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427080	Rouschal E.	1989		80	13.4785	47.10913	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427083	Rouschal E.	1989		83	13.53125	47.09476	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	427084	Rouschal E.	1989		84	13.50803	47.0977	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	431552	Kammerer H.	2006	1		14.494	47.01234	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	431553	Kammerer H.	2006	2		14.494	47.01234	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	431554	Kammerer H.	2006	3		14.494	47.01234	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448001	Franz W.	1979	1	1	12.83747	47.04199	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448005	Franz W.	1979	1	5	12.84532	47.04013	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448006	Franz W.	1979	1	6	12.84532	47.04013	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448007	Franz W.	1979	1	7	12.84532	47.04013	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448009	Franz W.	1979	1	9	12.84538	47.04022	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448010	Franz W.	1979	1	10	12.84538	47.04022	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448015	Franz W.	1979	1	15	12.46668	47.00866	41
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448042	Franz W.	1979	1	42	12.42446	47.00474	42
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448053	Franz W.	1979	1	53	13.15078	46.65283	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448054	Franz W.	1979	1	54	14.19104	46.8505	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448055	Franz W.	1979	1	55	14.30071	46.69265	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448056	Franz W.	1979	1	56	14.32282	46.52663	48
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448057	Franz W.	1979	1	57	14.32282	46.52663	48
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448058	Franz W.	1979	1	58	14.32282	46.52663	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448059	Franz W.	1979	1	59	14.32282	46.52663	57
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448061	Franz W.	1979	1	61	14.31596	46.53065	47
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448062	Franz W.	1979	1	62	14.31596	46.53065	47
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448063	Franz W.	1979	1	63	14.31596	46.53065	47
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448064	Franz W.	1979	1	64	14.56154	46.61465	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448065	Franz W.	1979	1	65	14.3913	46.57091	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448066	Franz W.	1979	1	66	14.70044	46.57060	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448067	Franz W.	1979	1	67	14.69186	46.55515	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448069	Franz W.	1979	1	69	12.95957	46.86466	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448071	Franz W.	1979	1	71	14.41466	46.54287	44
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448073	Franz W.	1979	1	73	13.21635	46.92917	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448074	Franz W.	1979	1	74	13.23566	46.92676	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448075	Franz W.	1979	1	75	13.23881	46.92676	19
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448076	Franz W.	1979	1	76	12.92348	46.77247	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448077	Franz W.	1979	1	77	12.92348	46.77247	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448078	Franz W.	1979	1	78	12.96238	46.86607	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448079	Franz W.	1979	1	79	12.96238	46.86607	11
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448080	Franz W.	1979	1	80	12.90677	46.93226	11
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448081	Franz W.	1979	1	81	14.49436	47.01282	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448083	Franz W.	1979	1	83	14.50124	47.0096	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448085	Franz W.	1979	1	85	14.5687	47.23082	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448086	Franz W.	1979	1	86	14.40157	46.90334	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448087	Franz W.	1979	1	87	14.38241	46.90329	11
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448089	Franz W.	1979	1	89	14.46691	47.21522	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448091	Franz W.	1979	1	91	14.19037	46.65647	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448092	Franz W.	1979	1	92	14.19037	46.65647	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448094	Franz W.	1979	1	94	14.70021	46.56822	19
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448096	Franz W.	1979	1	96	14.55386	46.80101	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448098	Franz W.	1979	1	98	13.81122	46.64528	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448101	Franz W.	1979	1	101	14.64575	46.68578	19
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448102	Franz W.	1979	1	102	14.95691	46.64298	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448104	Franz W.	1979	1	104	14.95267	46.64509	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448105	Franz W.	1979	1	105	14.88566	46.6672	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448107	Franz W.	1979	1	107	14.87262	46.68827	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448112	Franz W.	1979	1	112	14.54379	46.61068	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448159	Franz W.	1979	1	159	14.58453	47.23326	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448266	Franz W.	1979	1	266	0	0	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448268	Franz W.	1979	1	268	0	0	11
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	448269	Franz W.	1979	1	269	0	0	43
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	600364	Heber G.	2005	23	4	15.3959656	47.1124297	45
26	Potentillo pus.-Festucetum (E Tyrol, Carinthia)	AT	600365	Heber G.	2005	23	5	15.3959656	47.1124297	45
28	Polygalo majoris-Brachypodietum	AT	307112	Wagner H.	1941	3	2	16.25652552	48.0	

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
28	Polygalo majoris-Brachypodietum	AT	307636	Reichenberger G.	1990	1	22	16.25719	48.036257	28
28	Polygalo majoris-Brachypodietum	AT	307637	Reichenberger G.	1990	1	23	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307638	Reichenberger G.	1990	1	24	16.25719	48.036257	28
28	Polygalo majoris-Brachypodietum	AT	307639	Reichenberger G.	1990	1	25	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307640	Reichenberger G.	1990	1	26	16.25719	48.036257	28
28	Polygalo majoris-Brachypodietum	AT	307641	Reichenberger G.	1990	1	27	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307642	Reichenberger G.	1990	1	28	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307643	Reichenberger G.	1990	1	29	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307644	Reichenberger G.	1990	1	30	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307645	Reichenberger G.	1990	1	31	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307646	Reichenberger G.	1990	1	32	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307647	Reichenberger G.	1990	1	33	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307648	Reichenberger G.	1990	1	34	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307649	Reichenberger G.	1990	1	35	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307650	Reichenberger G.	1990	1	36	16.25719	48.036257	37
28	Polygalo majoris-Brachypodietum	AT	307729	Huspeka J.	1993	1	91	16.1442222	48.2926387	40
28	Polygalo majoris-Brachypodietum	AT	307733	Huspeka J.	1993	1	147	16.19572	48.3167467	40
28	Polygalo majoris-Brachypodietum	AT	307735	Huspeka J.	1993	1	149	16.1961595	48.3162925	40
28	Polygalo majoris-Brachypodietum	AT	307737	Huspeka J.	1993	1	162	0	0	40
28	Polygalo majoris-Brachypodietum	AT	307739	Huspeka J.	1993	1	97	16.144893	48.2922338	40
28	Polygalo majoris-Brachypodietum	AT	307748	Huspeka J.	1993	1	108	16.1706003	48.299255	39
28	Polygalo majoris-Brachypodietum	AT	307765	Huspeka J.	1993	1	139	0	0	40
28	Polygalo majoris-Brachypodietum	AT	307772	Huspeka J.	1993	1	159	16.146	48.2890282	40
28	Polygalo majoris-Brachypodietum	AT	307781	Huspeka J.	1993	1	76	16.228957	48.3276959	40
28	Polygalo majoris-Brachypodietum	AT	307782	Huspeka J.	1993	1	69	16.1907954	48.3103744	40
28	Polygalo majoris-Brachypodietum	AT	307783	Huspeka J.	1993	1	71	16.190164	48.3098214	40
28	Polygalo majoris-Brachypodietum	AT	307784	Huspeka J.	1993	1	161	0	0	40
28	Polygalo majoris-Brachypodietum	AT	307785	Huspeka J.	1993	1	95	16.1446484	48.2925582	40
28	Polygalo majoris-Brachypodietum	AT	307786	Huspeka J.	1993	1	96	16.1445883	48.2923551	40
28	Polygalo majoris-Brachypodietum	AT	307787	Huspeka J.	1993	1	109	16.1717706	48.2986395	40
28	Polygalo majoris-Brachypodietum	AT	312745	Seger M.	1976	2	2	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312746	Seger M.	1976	3	3	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312747	Seger M.	1976	4	4	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312748	Seger M.	1976	5	5	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312750	Seger M.	1976	7	7	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312751	Seger M.	1976	8	8	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312752	Seger M.	1976	9	9	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312753	Seger M.	1976	10	10	16.29222	48.06278	39
28	Polygalo majoris-Brachypodietum	AT	312755	Seger M.	1976	12	12	16.29222	48.06278	39
28	Polygalo majoris-Brachypodietum	AT	312756	Seger M.	1976	13	13	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312761	Rathmayer E.	1985	2	62	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312762	Rathmayer E.	1985	2	66	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312764	Rathmayer E.	1985	2	39	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312765	Rathmayer E.	1985	2	18	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312768	Rathmayer E.	1985	2	9	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312772	Rathmayer E.	1985	2	74	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312773	Rathmayer E.	1985	2	61	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	312776	Rathmayer E.	1985	2	8	16.29222	48.06278	38
28	Polygalo majoris-Brachypodietum	AT	318049	Auer M.	1982		49	0	0	39
28	Polygalo majoris-Brachypodietum	AT	318363	Mann M.	1997	13	27	16.2189822	48.0568182	46
28	Polygalo majoris-Brachypodietum	AT	318364	Mann M.	1997	13	30	16.2138796	48.0513133	46
28	Polygalo majoris-Brachypodietum	AT	318365	Mann M.	1997	13	26	16.2189822	48.0568182	46
28	Polygalo majoris-Brachypodietum	AT	335178	Willner W. et al.	2013	4	4	16.2877676	48.2930234	40
28	Polygalo majoris-Brachypodietum	AT	335182	Willner W. et al.	2013	4	5	16.0158634	48.0207686	46
28	Polygalo majoris-Brachypodietum	AT	335233	Willner W. et al.	2013	4	6	16.0634959	48.0412162	27
28	Polygalo majoris-Brachypodietum	AT	335238	Willner W. et al.	2013	4	7	16.2551497	48.0364421	37
28	Polygalo majoris-Brachypodietum	AT	335239	Willner W. et al.	2013	4	8	16.2518824	48.0378486	46
28	Polygalo majoris-Brachypodietum	AT	335249	Willner W. et al.	2013	4	10	16.252545	48.1253049	36
28	Polygalo majoris-Brachypodietum	AT	335254	Willner W. et al.	2013	4	12	16.2479122	48.1284314	36
28	Polygalo majoris-Brachypodietum	AT	335257	Willner W. et al.	2013	4	13	16.2498187	48.1236824	36
28	Polygalo majoris-Brachypodietum	AT	335258	Willner W. et al.	2013	4	14	16.2486804	48.1232366	36
28	Polygalo majoris-Brachypodietum	AT	335259	Willner W. et al.	2013	4	15	16.246784	48.1221548	46
28	Polygalo majoris-Brachypodietum	AT	335449	T. Wrkba	ined.			16.28473949	48.34615633	39
28	Polygalo majoris-Brachypodietum	AT	335450	T. Wrkba	ined.			16.28422345	48.34627661	40
28	Polygalo majoris-Brachypodietum	AT	335499	T. Wrkba	ined.			16.28308993	48.31695158	39
28	Polygalo majoris-Brachypodietum	AT	335572	T. Wrkba	ined.			16.28976729	48.2968976	39
28	Polygalo majoris-Brachypodietum	AT	335579	T. Wrkba	ined.			16.28951208	48.28977088	39
28	Polygalo majoris-Brachypodietum	AT	335580	T. Wrkba	ined.			16.28795324	48.29051818	39
28	Polygalo majoris-Brachypodietum	AT	335582	T. Wrkba	ined.			16.29012486	48.29230684	39
28	Polygalo majoris-Brachypodietum	AT	335636	T. Wrkba	ined.			16.29125871	48.29303242	39
28	Polygalo majoris-Brachypodietum	AT	335644	N. Sauberer	ined.			16.24828577	48.12636939	36
28	Polygalo majoris-Brachypodietum	AT	335646	N. Sauberer	ined.			16.15109	48.02095	39
28	Polygalo majoris-Brachypodietum	AT	335649	N. Sauberer	ined.			16.21489	48.0511	45
28	Polygalo majoris-Brachypodietum	AT	335650	N. Sauberer	ined.			16.14073	48.08438	39
28	Polygalo majoris-Brachypodietum	AT	335653	N. Sauberer	ined.			16.14865	48.09047	39
28	Polygalo majoris-Brachypodietum	AT	335658	N. Sauberer	ined.			16.25301	48.03439	37
28	Polygalo majoris-Brachypodietum	AT	335663	N. Sauberer	ined.			16.2572	48.03563	37
28	Polygalo majoris-Brachypodietum	AT	341080	M. Staudinger	ined.			16.19306	48.08635	39
28	Polygalo majoris-Brachypodietum	AT	355033	N. Sauberer	ined.			16.25336	48.0314	40
27	Agrostio-Dianthetum	AT	365287	Umweltbundesamt	ined.			13.09306358	47.19402177	54
27	Agrostio-Dianthetum	AT	365288	Umweltbundesamt	ined.			13.09306358	47.19402177	54
27	Agrostio-Dianthetum	AT	365312	Umweltbundesamt	ined.			13.72404548	47.15617306	54
27	Agrostio-Dianthetum	AT	365313	Umweltbundesamt	ined.			13.72404548	47.15617306	54
27	Agrostio-Dianthetum	AT	365314	Umweltbundesamt	ined.			13.72404548	47.15617306	54
27	Agrostio-Dianthetum	AT	365315	Umweltbundesamt	ined.			13.84118265	47.13406241	54
27	Agrostio-Dianthetum	AT	365316	Umweltbundesamt	ined.			13.84118265	47.13406241	54
27	Agrostio-Dianthetum	AT	365317	Umweltbundesamt	ined.			13.84118265	47.13406241	54
27	Agrostio-Dianthetum	AT	365455	Umweltbundesamt	ined.			13.13069479	46.94069327	54
27	Agrostio-Dianthetum	AT	365458	Umweltbundesamt	ined.			13.34898763	46.65480379	54
27	Agrostio-Dianthetum	AT	365468	Umweltbundesamt	ined.			13.83072619	46.62970878	54
27	Agrostio-Dianthetum	AT	415237	Aichinger E.	1933	20	3	13.92697	46.57428	54
27	Agrostio-Dianthetum	AT	415238	Aichinger E.	1933	20	4	13.93807	46.56711	57
27	Agrostio-Dianthetum	AT	415241	Aichinger E.	1933	21	1	0	0	54
27	Agrostio-Dianthetum	AT	415242	Aichinger E.	1933	21	2	0	0	54
27	Agrostio-Dianthetum	AT	415243	Aichinger E.	1933	21	3	0	0	54
27	Agrostio-Dianthetum	AT	415244	Aichinger E.	1933	21	4	0	0	54
27	Agrostio-Dianthetum	AT	425042	Hecke H.	1965	p.65	1	13.82348	46.65008	54
27	Agrostio-Dianthetum	AT	425043	Hecke H.	1965	p.65	2	13.81125	46.655	58
27	Agrostio-Dianthetum	AT	425044	Hecke H.	1965	p.65	3	13.81074	46.65356	58
27	Agrostio-Dianthetum	AT	425045	Hecke H.	1965	p.65	4	13.80521	46.65671	58
27	Agrostio-Dianthetum	AT	425046	Hecke H.	1965	p.65	5	13.81912	46.65538	58
27	Agrostio-Dianthetum	AT	425047	Hecke H.	1965	p.65	6	13.82474	46.65442	54
27	Agrostio-Dianthetum	AT	425048	Hecke H.	1965	p.65	7	13.8185	46.65584	54
27	Agrostio-Dianthetum	AT	425092	Thurner W.	1987	3	18	13.87695	46.55352	54
27	Agrostio-Dianthetum	AT	426436	Wagner H.	1985	1	22	12.39794	47.01993	54
27	Agrostio-Dianthetum	AT	426472	Magnes M. et al.	2021	S2	51	10.62602	47.1165	54
27	Agrostio-Dianthetum	AT	426474	Magnes M. et al.	2021	S2	52	10.62665	47.11661	54
27	Agrostio-Dianthetum	AT	426485	Magnes M. et al.	2021	S2	53	12.44963	47.01289	54
27	Agrostio-Dianthetum	AT	426494	Magnes M. et al.	2021	S2	54	12.44918	47.01289	54
27	Agrostio-Dianthetum	CH	426772	Braun-Blanquet J.	1961	42	7	10.1011	46.69878	14
27	Agrostio-Dianthetum	CH	426776	Braun-Blanquet J.	1961	42	11	10.06079	46.67584	43
27	Agrostio-Dianthetum	CH	426777	Braun-Blanquet J.	1961	42	12	10.17394	46.78118	43
27	Agrostio-Dianthetum	CH	426778	Braun-Blanquet J.	1961	42	13	10.10011	46.69755	14
27	Agrostio-Dianthetum	CH	426779	Bra						

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27	Agrostio-Dianthetum	IT	427137	Unterluggauer P.	2016		15	0	0	54
27	Agrostio-Dianthetum	IT	427138	Unterluggauer P.	2016		16	0	0	54
27	Agrostio-Dianthetum	IT	427139	Unterluggauer P.	2016		17	0	0	54
27	Agrostio-Dianthetum	IT	427141	Unterluggauer P.	2016		19	0	0	54
27	Agrostio-Dianthetum	IT	427142	Unterluggauer P.	2016		20	0	0	54
27	Agrostio-Dianthetum	IT	427144	Unterluggauer P.	2016		22	0	0	58
27	Agrostio-Dianthetum	IT	427146	Unterluggauer P.	2016		24	0	0	54
27	Agrostio-Dianthetum	IT	427147	Unterluggauer P.	2016		25	0	0	55
27	Agrostio-Dianthetum	IT	427148	Unterluggauer P.	2016		26	0	0	54
27	Agrostio-Dianthetum	IT	427149	Unterluggauer P.	2016		27	0	0	54
27	Agrostio-Dianthetum	AT	445409	Halder C.	1991	2	12	11.38819	47.16628	54
27	Agrostio-Dianthetum	AT	445410	Halder C.	1991	2	13	11.38819	47.16628	54
27	Agrostio-Dianthetum	AT	445411	Halder C.	1991	2	14	11.38819	47.16628	54
27	Agrostio-Dianthetum	AT	445412	Halder C.	1991	2	15	11.38819	47.16628	54
27	Agrostio-Dianthetum	AT	445413	Halder C.	1991	2	16	11.38819	47.16628	57
27	Agrostio-Dianthetum	IT	445591	Fontana V.	2009	6	1	10.47751101	46.65032159	54
27	Agrostio-Dianthetum	IT	445592	Fontana V.	2009	6	2	10.47751101	46.65032159	54
27	Agrostio-Dianthetum	IT	445593	Fontana V.	2009	6	3	10.47751101	46.65032159	54
29	Festuco rupicolae-Brometum	AT	307565	Wagner H.	1941	p.58		0	0	51
29	Festuco rupicolae-Brometum	AT	307719	Huspeka J.	1993	1	160	0	0	46
29	Festuco rupicolae-Brometum	AT	307721	Huspeka J.	1993	1	171	16.138376	48.2940092	46
29	Festuco rupicolae-Brometum	AT	307722	Huspeka J.	1993	1	168	16.15055	48.2976166	46
29	Festuco rupicolae-Brometum	AT	307725	Huspeka J.	1993	1	154	16.2097111	48.3204982	46
29	Festuco rupicolae-Brometum	AT	307727	Huspeka J.	1993	1	101	16.1485997	48.2934985	46
29	Festuco rupicolae-Brometum	AT	307728	Huspeka J.	1993	1	158	16.1910512	48.3145972	46
29	Festuco rupicolae-Brometum	AT	307731	Huspeka J.	1993	1	116	16.1766138	48.3066041	46
29	Festuco rupicolae-Brometum	AT	307740	Huspeka J.	1993	1	34	16.1554757	48.295026	46
29	Festuco rupicolae-Brometum	AT	307741	Huspeka J.	1993	1	36	16.1555252	48.2947987	46
29	Festuco rupicolae-Brometum	AT	307742	Huspeka J.	1993	1	103	16.1556721	48.2945391	46
29	Festuco rupicolae-Brometum	AT	307743	Huspeka J.	1993	1	100	16.1480524	48.2934164	46
29	Festuco rupicolae-Brometum	AT	307744	Huspeka J.	1993	1	90	16.144464	48.2930451	46
29	Festuco rupicolae-Brometum	AT	307747	Huspeka J.	1993	1	167	16.1502103	48.2973237	46
29	Festuco rupicolae-Brometum	AT	307750	Huspeka J.	1993	1	157	16.230465	48.3286067	46
29	Festuco rupicolae-Brometum	AT	307754	Huspeka J.	1993	1	107	16.1697745	48.2987016	46
29	Festuco rupicolae-Brometum	AT	307755	Huspeka J.	1993	1	126	16.1807987	48.3073244	50
29	Festuco rupicolae-Brometum	AT	307759	Huspeka J.	1993	1	172	16.1465283	48.2942259	46
29	Festuco rupicolae-Brometum	AT	307760	Huspeka J.	1993	1	77	16.2188349	48.3237559	50
29	Festuco rupicolae-Brometum	AT	307762	Huspeka J.	1993	1	150	16.2065246	48.3191629	46
29	Festuco rupicolae-Brometum	AT	307763	Huspeka J.	1993	1	151	16.2066212	48.3194553	50
29	Festuco rupicolae-Brometum	AT	307768	Huspeka J.	1993	1	12	16.2017118	48.3159418	46
29	Festuco rupicolae-Brometum	AT	307774	Huspeka J.	1993	1	70	16.1902132	48.3096266	46
29	Festuco rupicolae-Brometum	AT	307777	Huspeka J.	1993	1	13	16.1955245	48.3170063	50
29	Festuco rupicolae-Brometum	AT	307778	Huspeka J.	1993	1	14	16.1954266	48.3171686	50
29	Festuco rupicolae-Brometum	AT	307779	Huspeka J.	1993	1	21	16.1407675	48.2891412	46
29	Festuco rupicolae-Brometum	AT	307788	Huspeka J.	1993	1	19	16.1359901	48.2876028	46
29	Festuco rupicolae-Brometum	AT	307789	Huspeka J.	1993	1	11	16.2021497	48.3160723	46
29	Festuco rupicolae-Brometum	AT	307791	Huspeka J.	1993	1	48	16.173711	48.300786	50
29	Festuco rupicolae-Brometum	AT	307792	Huspeka J.	1993	1	61	16.1789553	48.3051132	45
29	Festuco rupicolae-Brometum	AT	307793	Huspeka J.	1993	1	64	16.1855665	48.3085325	45
29	Festuco rupicolae-Brometum	AT	307794	Huspeka J.	1993	1	18	16.1359913	48.2872983	46
29	Festuco rupicolae-Brometum	AT	312754	Seger M.	1976		11	16.29222	48.06278	46
29	Festuco rupicolae-Brometum	AT	318046	Auer M.	1982		46	0	0	46
29	Festuco rupicolae-Brometum	AT	318047	Auer M.	1982		47	0	0	50
29	Festuco rupicolae-Brometum	AT	318048	Auer M.	1982		48	0	0	46
29	Festuco rupicolae-Brometum	AT	318064	Florian B.	1992	4		0	0	50
29	Festuco rupicolae-Brometum	AT	318067	Florian B.	1992	4		0	0	50
29	Festuco rupicolae-Brometum	AT	318219	Zeugswetter M.	2013			16.16736	48.07597	46
29	Festuco rupicolae-Brometum	AT	318221	Zeugswetter M.	2013			16.17705	48.07858	46
29	Festuco rupicolae-Brometum	AT	318222	Zeugswetter M.	2013			16.17543	48.07793	46
29	Festuco rupicolae-Brometum	AT	318223	Zeugswetter M.	2013			16.178	48.07825	51
29	Festuco rupicolae-Brometum	AT	318224	Zeugswetter M.	2013			16.17237	48.07797	46
29	Festuco rupicolae-Brometum	AT	318226	Zeugswetter M.	2013			16.1744	48.07633	46
29	Festuco rupicolae-Brometum	AT	318231	Zeugswetter M.	2013			16.00238	48.03075	46
29	Festuco rupicolae-Brometum	AT	318238	Zeugswetter M.	2013			16.1785	48.07099	46
29	Festuco rupicolae-Brometum	AT	318241	Zeugswetter M.	2013			16.16997	48.07536	51
29	Festuco rupicolae-Brometum	AT	318243	Zeugswetter M.	2013			16.16877	48.07477	51
29	Festuco rupicolae-Brometum	AT	318275	Zeugswetter M.	2013			16.17341	48.07411	51
29	Festuco rupicolae-Brometum	AT	318281	Zeugswetter M.	2013			16.17676	48.07155	51
29	Festuco rupicolae-Brometum	AT	318356	Hundt R. & Hübl E.	1983	4		16.12243652	48.06293765	46
29	Festuco rupicolae-Brometum	AT	318368	Mann M.	1997	13	4	16.1940963	48.0538684	51
29	Festuco rupicolae-Brometum	AT	318388	Huspeka J.	1993	2	102	16.1550859	48.2951228	46
29	Festuco rupicolae-Brometum	AT	318397	Huspeka J.	1993	2	125	16.1804581	48.3072265	50
29	Festuco rupicolae-Brometum	AT	318404	Huspeka J.	1993	2	50	16.1718027	48.303804	51
29	Festuco rupicolae-Brometum	AT	318405	Huspeka J.	1993	2	52	16.1652425	48.3001566	50
29	Festuco rupicolae-Brometum	AT	318406	Huspeka J.	1993	2	56	16.1708309	48.3032179	51
29	Festuco rupicolae-Brometum	AT	318407	Huspeka J.	1993	2	59	16.1797336	48.3053416	50
29	Festuco rupicolae-Brometum	AT	318408	Huspeka J.	1993	2	62	16.1806492	48.308461	50
29	Festuco rupicolae-Brometum	AT	318415	Huspeka J.	1993	2	112	16.1701977	48.3033145	51
29	Festuco rupicolae-Brometum	AT	318424	Huspeka J.	1993	2	5	16.2077455	48.3178001	51
29	Festuco rupicolae-Brometum	AT	318428	Huspeka J.	1993	2	23	16.1422213	48.2908083	51
29	Festuco rupicolae-Brometum	AT	318431	Huspeka J.	1993	2	33	16.1558163	48.295059	50
29	Festuco rupicolae-Brometum	AT	318432	Huspeka J.	1993	2	35	16.1559145	48.2948318	50
29	Festuco rupicolae-Brometum	AT	318433	Huspeka J.	1993	2	40	16.1619417	48.2973421	51
29	Festuco rupicolae-Brometum	AT	318438	Huspeka J.	1993	2	38	16.161796	48.2972444	51
29	Festuco rupicolae-Brometum	AT	318448	Huspeka J.	1993	2	146	16.195138	48.315869	50
29	Festuco rupicolae-Brometum	AT	318497	Schardinger M.	2005		A19	15.9789153	48.1149612	51
29	Festuco rupicolae-Brometum	AT	318500	Schardinger M.	2005		A13	15.9630484	48.1122616	51
29	Festuco rupicolae-Brometum	AT	335001	Willner W. et al.	2013	4	17	16.0743333	48.10775	51
29	Festuco rupicolae-Brometum	AT	335002	Willner W. et al.	2013	4	18	16.0455277	48.1027777	51
29	Festuco rupicolae-Brometum	AT	335019	Willner W. et al.	2013	5	1	16.1001111	48.1325277	55
29	Festuco rupicolae-Brometum	AT	335029	Willner W. et al.	2013	4	21	16.1340555	48.2892222	51
29	Festuco rupicolae-Brometum	AT	335050	Willner W. et al.	2013	4	23	16.178721	48.0608971	51
29	Festuco rupicolae-Brometum	AT	335117	Willner W. et al.	2013	4	26	15.9622743	48.0233236	50
29	Festuco rupicolae-Brometum	AT	335159	Willner W. et al.	2013	6	32	15.9495992	48.2053261	51
29	Festuco rupicolae-Brometum	AT	335169	Willner W. et al.	2013	4	28	16.2178297	48.0566314	50
29	Festuco rupicolae-Brometum	AT	335170	Willner W. et al.	2013	4	29	16.0004428	48.0250962	51
29	Festuco rupicolae-Brometum	AT	335177	Willner W. et al.	2013	4	30	16.0206668	48.0079595	50
29	Festuco rupicolae-Brometum	AT	335185	Willner W. et al.	2013	4	31	15.9289764	48.1588796	51
29	Festuco rupicolae-Brometum	AT	335218	Willner W. et al.	2013	4	34	16.1378072	47.9763493	51
29	Festuco rupicolae-Brometum	AT	335222	Willner W. et al.	2013	4	35	16.106711	48.0164135	50
29	Festuco rupicolae-Brometum	AT	335226	N. Sauberer	ined.			16.1000593	47.9971624	46
29	Festuco rupicolae-Brometum	AT	335228	N. Sauberer	ined.			16.0787929	48.0433817	46
29	Festuco rupicolae-Brometum	AT	335229	Willner W. et al.	2013	4	36	16.0698846	48.0429145	50
29	Festuco rupicolae-Brometum	AT	335265	Willner W. et al.	2013	4	37	16.1622064	48.0242754	51
29	Festuco rupicolae-Brometum	AT	335272	Willner W. et al.	2013	4	38	16.1748755	48.1357043	46
29	Festuco rupicolae-Brometum	AT	335274	Willner W. et al.	2013	4	39	16.1483126	48.147471	51
29	Festuco rupicolae-Brometum	AT	335279	Willner W. et al.	2013	4	40	16.1345461	48.1582823	51
29	Festuco rupicolae-Brometum	AT	335290	Willner W. et al.	2013	4	41	16.2239478	48.1000746	51
29	Festuco rupicolae-Brometum	AT	335293	Willner W. et al.	2013	4	42	16.1450513	48.2343375	51
29	Festuco rupicolae-Brometum	AT	335306	V. Grass	ined.		13	16.1955245	48.3170063	46
29	Festuco rupicolae-Brometum	AT	335308	V. Grass	ined.		15	16.1384937	48.2891297	51
29	Festuco rupicolae-Brometum	AT	335312	V. Grass	ined.		19	16.1359901	48.2876028	46
29	Festuco rupicolae-Brometum	AT	335318	V. Grass	ined.		25	16.1431899	48.2921092	50
29	Festuco rupicolae-Brometum	AT	335326	V. Grass	ined.		33	16.1558163	48.295059	50
29	Festuco rupicolae-Brometum	AT	335327	V. Grass	ined.		35	16.1559145	48.2948318	

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29	Festuco rupicolae-Brometum	AT	335519	T. Wrбка	ined.			16.29622828	48.32601669	50
29	Festuco rupicolae-Brometum	AT	335522	T. Wrбка	ined.			16.29321745	48.32379015	46
29	Festuco rupicolae-Brometum	AT	335524	T. Wrбка	ined.			16.29507067	48.32462537	50
29	Festuco rupicolae-Brometum	AT	335536	T. Wrбка	ined.			16.23739478	48.30664313	51
29	Festuco rupicolae-Brometum	AT	335542	T. Wrбка	ined.			16.28735187	48.30882101	50
29	Festuco rupicolae-Brometum	AT	335543	T. Wrбка	ined.			16.28793139	48.309506	50
29	Festuco rupicolae-Brometum	AT	335547	T. Wrбка	ined.			16.29264955	48.30213729	50
29	Festuco rupicolae-Brometum	AT	335551	T. Wrбка	ined.			16.31021445	48.30047799	50
29	Festuco rupicolae-Brometum	AT	335555	T. Wrбка	ined.			16.22961585	48.27273451	51
29	Festuco rupicolae-Brometum	AT	335568	T. Wrбка	ined.			16.28842199	48.29761328	50
29	Festuco rupicolae-Brometum	AT	335569	T. Wrбка	ined.			16.29180841	48.29833854	50
29	Festuco rupicolae-Brometum	AT	335571	T. Wrбка	ined.			16.28990002	48.29720087	50
29	Festuco rupicolae-Brometum	AT	335577	T. Wrбка	ined.			16.3197134	48.29482905	46
29	Festuco rupicolae-Brometum	AT	335578	T. Wrбка	ined.			16.29103126	48.29050611	50
29	Festuco rupicolae-Brometum	AT	335583	T. Wrбка	ined.			16.3229129	48.2864024	50
29	Festuco rupicolae-Brometum	AT	335590	T. Wrбка	ined.			16.3061035	48.28302788	50
29	Festuco rupicolae-Brometum	AT	335591	T. Wrбка	ined.			16.30575489	48.282747	46
29	Festuco rupicolae-Brometum	AT	335592	T. Wrбка	ined.			16.30620026	48.28358949	46
29	Festuco rupicolae-Brometum	AT	335604	T. Wrбка	ined.			16.32492308	48.28188645	46
29	Festuco rupicolae-Brometum	AT	335605	T. Wrбка	ined.			16.32523639	48.28204185	46
29	Festuco rupicolae-Brometum	AT	335634	T. Wrбка	ined.			16.29071301	48.29185101	50
29	Festuco rupicolae-Brometum	AT	335635	T. Wrбка	ined.			16.29135479	48.29258096	46
29	Festuco rupicolae-Brometum	AT	335637	T. Wrбка	ined.			16.29216701	48.2938172	50
29	Festuco rupicolae-Brometum	AT	335638	T. Wrбка	ined.			16.29300101	48.29358036	50
29	Festuco rupicolae-Brometum	AT	335647	N. Sauberer	ined.			16.12198	48.04946	51
29	Festuco rupicolae-Brometum	AT	335648	N. Sauberer	ined.			16.08125	48.06211	46
29	Festuco rupicolae-Brometum	AT	335655	N. Sauberer	ined.			16.19314	48.05367	46
29	Festuco rupicolae-Brometum	AT	340595	Urban B.	1992		61	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340598	Urban B.	1992		54	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340600	Urban B.	1992		60	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340605	Urban B.	1992		99	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340607	Urban B.	1992		102	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340611	Urban B.	1992		28	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340612	Urban B.	1992		81	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340613	Urban B.	1992		86	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340621	Urban B.	1992		97	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340622	Urban B.	1992		93	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340623	Urban B.	1992		27	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340626	Urban B.	1992		21	15.985	47.976	51
29	Festuco rupicolae-Brometum	AT	340627	Urban B.	1992		26	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340629	Urban B.	1992		30	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	340631	Urban B.	1992		58	15.985	47.976	52
29	Festuco rupicolae-Brometum	AT	341075	M. Staudinger	ined.			16.15258	48.09016	50
29	Festuco rupicolae-Brometum	AT	343165	M. Staudinger	ined.			16.03296667	48.08548333	51
29	Festuco rupicolae-Brometum	AT	343166	M. Staudinger	ined.			16.03128333	48.08483333	51
29	Festuco rupicolae-Brometum	AT	343180	M. Staudinger	ined.			16.01335	48.10631667	51
29	Festuco rupicolae-Brometum	AT	343181	M. Staudinger	ined.			16.0107	48.10691667	51
29	Festuco rupicolae-Brometum	AT	343190	M. Staudinger	ined.			15.99125	48.10181667	51
29	Festuco rupicolae-Brometum	AT	343237	M. Staudinger	ined.			16.21166667	48.28668333	51
29	Festuco rupicolae-Brometum	AT	343240	M. Staudinger	ined.			16.22451667	48.29815	51
29	Festuco rupicolae-Brometum	AT	343283	M. Staudinger	ined.			16.029491	48.029526	51
29	Festuco rupicolae-Brometum	AT	343284	M. Staudinger	ined.			16.029491	48.029526	51
29	Festuco rupicolae-Brometum	AT	343296	V. Grass	ined.			15.99448	47.72668	51
29	Festuco rupicolae-Brometum	AT	343297	V. Grass	ined.			16.00698	47.70972	46
29	Festuco rupicolae-Brometum	AT	344602	Steinbuch E.	1995	25	1	15.52995	47.20556	53
29	Festuco rupicolae-Brometum	AT	344603	Steinbuch E.	1995	25	2	15.68084	47.3347	53
29	Festuco rupicolae-Brometum	AT	355036	N. Sauberer	ined.			16.24965	48.03104	46
29	Festuco rupicolae-Brometum	AT	355037	N. Sauberer	ined.			16.24975	48.03089	46
29	Festuco rupicolae-Brometum	AT	355039	N. Sauberer	ined.			16.25024	48.03075	46
29	Festuco rupicolae-Brometum	AT	360103	Lambropoulos M.	2011	W2-1		16.16383	47.91251	46
29	Festuco rupicolae-Brometum	AT	360104	Lambropoulos M.	2011	W2-2		16.16383	47.91251	46
29	Festuco rupicolae-Brometum	AT	360105	Lambropoulos M.	2011	W2-3		16.16383	47.91251	46
29	Festuco rupicolae-Brometum	AT	360106	Lambropoulos M.	2011	W2-4		16.16383	47.91251	46
29	Festuco rupicolae-Brometum	AT	360110	Lambropoulos M.	2011	W2-8		16.16383	47.91251	46
29	Festuco rupicolae-Brometum	AT	365241	Umweltbundesamt	ined.			15.97654343	48.0208086	50
29	Festuco rupicolae-Brometum	AT	365242	Umweltbundesamt	ined.			15.97654343	48.0208086	51
29	Festuco rupicolae-Brometum	AT	365244	Umweltbundesamt	ined.			15.97654343	48.0208086	46
29	Festuco rupicolae-Brometum	AT	365245	Umweltbundesamt	ined.			15.99625706	48.07386624	46
29	Festuco rupicolae-Brometum	AT	365252	Umweltbundesamt	ined.			16.12819693	48.27410983	51
29	Festuco rupicolae-Brometum	AT	365257	Umweltbundesamt	ined.			16.11447625	48.04930752	51
29	Festuco rupicolae-Brometum	AT	365258	Umweltbundesamt	ined.			16.11447625	48.04930752	51
29	Festuco rupicolae-Brometum	AT	365259	Umweltbundesamt	ined.			16.11447625	48.04930752	51
29	Festuco rupicolae-Brometum	AT	365260	Umweltbundesamt	ined.			16.11447625	48.04930752	51
29	Festuco rupicolae-Brometum	AT	365261	Umweltbundesamt	ined.			16.12313074	48.12100876	51
29	Festuco rupicolae-Brometum	AT	365262	Umweltbundesamt	ined.			16.12313074	48.12100876	51
29	Festuco rupicolae-Brometum	AT	365264	Umweltbundesamt	ined.			16.12313074	48.12100876	51
29	Festuco rupicolae-Brometum	AT	365265	Umweltbundesamt	ined.			16.12855559	48.16582029	51
29	Festuco rupicolae-Brometum	AT	365270	Umweltbundesamt	ined.			16.29378651	48.30087741	51
29	Festuco rupicolae-Brometum	AT	365271	Umweltbundesamt	ined.			16.29378651	48.30087741	51
29	Festuco rupicolae-Brometum	AT	365272	Umweltbundesamt	ined.			16.29378651	48.30087741	51
29	Festuco rupicolae-Brometum	AT	365318	Umweltbundesamt	ined.			13.98315446	47.09288648	54
29	Festuco rupicolae-Brometum	AT	365319	Umweltbundesamt	ined.			13.98315446	47.09288648	46
29	Festuco rupicolae-Brometum	AT	365320	Umweltbundesamt	ined.			13.98315446	47.09288648	54
29	Festuco rupicolae-Brometum	AT	365321	Umweltbundesamt	ined.			14.1451504	47.14088728	54
29	Festuco rupicolae-Brometum	AT	365322	Umweltbundesamt	ined.			14.1451504	47.14088728	46
29	Festuco rupicolae-Brometum	AT	365323	Umweltbundesamt	ined.			14.1451504	47.14088728	46
29	Festuco rupicolae-Brometum	AT	365325	Umweltbundesamt	ined.			14.21672806	47.21023445	54
29	Festuco rupicolae-Brometum	AT	365326	Umweltbundesamt	ined.			14.21672806	47.21023445	54
29	Festuco rupicolae-Brometum	AT	365328	Umweltbundesamt	ined.			14.21672806	47.21023445	43
29	Festuco rupicolae-Brometum	AT	365385	Umweltbundesamt	ined.			15.81223654	47.64170717	51
29	Festuco rupicolae-Brometum	AT	365386	Umweltbundesamt	ined.			15.81223654	47.64170717	51
29	Festuco rupicolae-Brometum	AT	365393	Umweltbundesamt	ined.			15.85203654	47.63958069	51
29	Festuco rupicolae-Brometum	AT	365394	Umweltbundesamt	ined.			15.85203654	47.63958069	51
29	Festuco rupicolae-Brometum	AT	365395	Umweltbundesamt	ined.			15.85203654	47.63958069	46
29	Festuco rupicolae-Brometum	AT	365396	Umweltbundesamt	ined.			15.85203654	47.63958069	51
29	Festuco rupicolae-Brometum	AT	365400	Umweltbundesamt	ined.			15.95528324	47.72422663	46
29	Festuco rupicolae-Brometum	AT	365401	Umweltbundesamt	ined.			15.95528324	47.72422663	51
29	Festuco rupicolae-Brometum	AT	365402	Umweltbundesamt	ined.			15.95528324	47.72422663	50
29	Festuco rupicolae-Brometum	AT	365405	Umweltbundesamt	ined.			16.10825318	48.22108302	54
29	Festuco rupicolae-Brometum	AT	365406	Umweltbundesamt	ined.			16.17571157	47.66686773	51
29	Festuco rupicolae-Brometum	AT	365480	Umweltbundesamt	ined.			14.26501103	47.15426405	46
29	Festuco rupicolae-Brometum	AT	365481	Umweltbundesamt	ined.			14.26501103	47.15426405	46
29	Festuco rupicolae-Brometum	AT	365482	Umweltbundesamt	ined.			14.26501103	47.15426405	50
29	Festuco rupicolae-Brometum	AT	365483	Umweltbundesamt	ined.			14.26501103	47.15426405	45
29	Festuco rupicolae-Brometum	AT	365494	Umweltbundesamt	ined.			14.42010721	46.95872884	50
29	Festuco rupicolae-Brometum	AT	365516	Umweltbundesamt	ined.			14.73773964	47.12560939	46
29	Festuco rupicolae-Brometum	AT	365519	Umweltbundesamt	ined.			14.85565981	47.39991351	46
29	Festuco rupicolae-Brometum	AT	365520	Umweltbundesamt	ined.			14.85565981	47.39991351	46
29	Festuco rupicolae-Brometum	AT	365521	Umweltbundesamt	ined.			14.85565981	47.39991351	46
29	Festuco rupicolae-Brometum	AT	365527	Umweltbundesamt	ined.			14.92556716	47.29758302	46
29	Festuco rupicolae-Brometum	AT	365528	Umweltbundesamt	ined.			14.92556716	47.29758302	50
29	Festuco rupicolae-Brometum	AT	365531	Umweltbundesamt	ined.			14.97286375	47.37658433	45
29	Festuco rupicolae-Brometum	AT	365533	Umweltbundesamt	ined.			14.98090037	47.32211208	54
29	Festuco rupicolae-Brometum	AT	365550	Umweltbundesamt	ined.			15.64434348	48.05641731	50
29	Festuco rupicolae-Brometum	AT	365551	Umweltbundesamt	ined.			15.64434348	48.05641731	46
29	Festuco rupicolae-Brometum	AT	365612	Umweltbundesamt	ined.			13.79758148	47.6221662	45
29	Festuco rupicolae-Brometum	AT	365613	Umweltbundesamt	ined.			13.79758148	47.6221662	45
29	Festuco rupicolae-Brometum	AT	365616	Umweltbundesamt</						

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
29	Festuco rupicolae-Brometum	AT	376028	G. Kadlec	ined.			15.94832	47.68832	45
29	Festuco rupicolae-Brometum	AT	376030	G. Kadlec	ined.			15.28535	47.41763	46
29	Festuco rupicolae-Brometum	AT	413564	Oberforster M.	1986	p120	7	14.55166	47.932	53
29	Festuco rupicolae-Brometum	AT	413566	Oberforster M.	1986	p120	19	14.55457	47.92483	53
29	Festuco rupicolae-Brometum	AT	413569	Oberforster M.	1986	p120	42	14.54684	47.9183	51
29	Festuco rupicolae-Brometum	AT	413664	Niklfeld H.	1979	5	6	15.07317	47.36668	45
29	Festuco rupicolae-Brometum	AT	425169	Braun-Blanquet J.	1961	57	12	14.89971	47.26313	45
29	Festuco rupicolae-Brometum	AT	425174	Braun-Blanquet J.	1961	57	17	0	0	45
29	Festuco rupicolae-Brometum	AT	425175	Braun-Blanquet J.	1961	57	18	15.23336	47.52707	45
29	Festuco rupicolae-Brometum	AT	425176	Braun-Blanquet J.	1961	57	19	0	0	46
29	Festuco rupicolae-Brometum	AT	425476	Essl F.	1998		246	0	0	50
29	Festuco rupicolae-Brometum	AT	425477	Essl F.	1998		247	0	0	50
29	Festuco rupicolae-Brometum	AT	431120	M. Staudinger	ined.			0	0	50
29	Festuco rupicolae-Brometum	AT	431122	M. Staudinger	ined.			0	0	51
29	Festuco rupicolae-Brometum	AT	432291	Bohner A., Grims F., Sobotik M. & Zechner L.	2003	4	1	14.12744	47.54703	53
29	Festuco rupicolae-Brometum	AT	432297	Bohner A., Grims F., Sobotik M. & Zechner L.	2003	4	7	14.12744	47.54703	51
29	Festuco rupicolae-Brometum	AT	432298	Bohner A., Grims F., Sobotik M. & Zechner L.	2003	4	8	14.12744	47.54703	51
29	Festuco rupicolae-Brometum	AT	432305	Bohner A., Grims F., Sobotik M. & Zechner L.	2003	4	15	14.12744	47.54703	53
29	Festuco rupicolae-Brometum	AT	432306	Bohner A., Grims F., Sobotik M. & Zechner L.	2003	4	16	14.12744	47.54703	53
29	Festuco rupicolae-Brometum	AT	433005	M. Staudinger	ined.			14.41478	47.948056	50
29	Festuco rupicolae-Brometum	AT	433459	M. Staudinger	ined.			15.389868	47.813911	53
29	Festuco rupicolae-Brometum	AT	433471	M. Staudinger	ined.			15.367124	47.808905	51
29	Festuco rupicolae-Brometum	AT	433481	M. Staudinger	ined.			15.347892	47.785982	55
29	Festuco rupicolae-Brometum	AT	433493	M. Staudinger	ined.			15.34426	48.021459	51
29	Festuco rupicolae-Brometum	AT	433552	M. Staudinger	ined.			15.450496	47.768379	52
29	Festuco rupicolae-Brometum	AT	434191	Pfeffer I.	1981			15.92361	47.70288	51
29	Festuco rupicolae-Brometum	AT	434192	Pfeffer I.	1981			16.0412	47.72694	50
29	Festuco rupicolae-Brometum	AT	434193	Pfeffer I.	1981			15.97072	47.82666	51
29	Festuco rupicolae-Brometum	AT	434194	Pfeffer I.	1981			15.98089	47.84401	51
29	Festuco rupicolae-Brometum	AT	434195	Pfeffer I.	1981			15.98214	47.84604	51
29	Festuco rupicolae-Brometum	AT	434196	Pfeffer I.	1981			15.96318	47.82606	50
29	Festuco rupicolae-Brometum	AT	434197	Pfeffer I.	1981			15.79548	47.95063	51
29	Festuco rupicolae-Brometum	AT	434198	Pfeffer I.	1981			15.95939	47.81395	51
29	Festuco rupicolae-Brometum	AT	434199	Pfeffer I.	1981			15.98089	47.84401	50
29	Festuco rupicolae-Brometum	AT	434200	Pfeffer I.	1981			16.00362	47.87164	52
29	Festuco rupicolae-Brometum	AT	434210	Pfeffer I.	1981			15.97459	47.8269	52
29	Festuco rupicolae-Brometum	AT	434211	Pfeffer I.	1981			15.54928	47.99531	51
29	Festuco rupicolae-Brometum	AT	434213	Pfeffer I.	1981			15.28936	47.81781	53
29	Festuco rupicolae-Brometum	AT	434226	Pfeffer I.	1981			15.97234	47.87186	46
29	Festuco rupicolae-Brometum	AT	434227	Pfeffer I.	1981			15.47339	47.82887	54
29	Festuco rupicolae-Brometum	AT	445257	Bassler G., Lichtenecker A. & Karrer G.	2000	1	5	14.15024	47.51948	53
29	Festuco rupicolae-Brometum	AT	445258	Bassler G., Lichtenecker A. & Karrer G.	2000	1	6	14.15024	47.51948	53
29	Festuco rupicolae-Brometum	AT	445261	Bassler G., Lichtenecker A. & Karrer G.	2000	1	9	14.06144	47.53591	53
29	Festuco rupicolae-Brometum	AT	445270	Bassler G., Lichtenecker A. & Karrer G.	2000	1	18	14.18719	47.51386	53
29	Festuco rupicolae-Brometum	AT	448070	Franz W.	1979	1	70	14.4033	47.01046	45
29	Festuco rupicolae-Brometum	AT	448090	Franz W.	1979	1	90	14.48241	47.21349	46
29	Festuco rupicolae-Brometum	AT	600361	Heber G.	2005	23	1	15.3959656	47.1124297	50
29	Festuco rupicolae-Brometum	AT	600362	Heber G.	2005	23	2	15.3959656	47.1124297	50
29	Festuco rupicolae-Brometum	AT	600363	Heber G.	2005	23	3	15.3959656	47.1124297	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307605	Karrer G.	1985	9	1	16.06005907	48.01728607	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307606	Karrer G.	1985	9	2	16.06005907	48.01728607	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307607	Karrer G.	1985	9	3	16.06005907	48.01728607	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307608	Karrer G.	1985	9	4	16.06005907	48.01728607	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307730	Huspeka J.	1993	1	115	16.1763225	48.3063114	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307745	Huspeka J.	1993	1	143	16.1908085	48.314337	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307756	Huspeka J.	1993	1	134	16.1905052	48.3096594	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307761	Huspeka J.	1993	1	145	16.1948452	48.3161285	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307764	Huspeka J.	1993	1	138	16.1885719	48.3131649	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307766	Huspeka J.	1993	1	6	16.2020477	48.3178261	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307767	Huspeka J.	1993	1	8	16.2019495	48.3181508	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307769	Huspeka J.	1993	1	26	16.14265	48.2900782	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307770	Huspeka J.	1993	1	27	16.1421631	48.290118	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307790	Huspeka J.	1993	1	60	16.1793452	48.3049838	46
30	Euphorbio verrucosae-Caricetum typicum	AT	307795	Huspeka J.	1993	1	30	16.1461726	48.2917081	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307796	Huspeka J.	1993	1	47	16.1730779	48.3008501	50
30	Euphorbio verrucosae-Caricetum typicum	AT	307797	Huspeka J.	1993	1	65	16.1853723	48.3083374	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318044	Auer M.	1982		44	0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318045	Auer M.	1982		45	0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318058	Florian B.	1992	4		0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318059	Florian B.	1992	4		0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318060	Florian B.	1992	4		0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318065	Florian B.	1992	4		0	0	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318131	Nowak E.	2003			16.2089252	48.1538641	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318145	Nowak E.	2003			16.2094718	48.1542978	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318146	Nowak E.	2003			16.2048447	48.1530933	55
30	Euphorbio verrucosae-Caricetum typicum	AT	318147	Nowak E.	2003			16.2049926	48.1536931	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318155	Nowak E.	2003			16.2071314	48.1544617	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318225	Zeugswetter M.	2013			16.17323	48.07818	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318227	Zeugswetter M.	2013			15.98912	48.0277	46
30	Euphorbio verrucosae-Caricetum typicum	AT	318228	Zeugswetter M.	2013			16.01117	48.02255	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318229	Zeugswetter M.	2013			16.1712	48.07702	46
30	Euphorbio verrucosae-Caricetum typicum	AT	318230	Zeugswetter M.	2013			16.00377	48.0367	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318242	Zeugswetter M.	2013			15.99888	48.03098	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318245	Zeugswetter M.	2013			16.0107	48.0222	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318261	Zeugswetter M.	2013			16.00972	48.02517	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318274	Zeugswetter M.	2013			16.17236	48.07302	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318278	Zeugswetter M.	2013			16.14603	48.15142	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318280	Zeugswetter M.	2013			16.1724	48.07439	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318369	Mann M.	1997	13	3	16.1794282	48.0596397	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318402	Huspeka J.	1993	2	37	16.1619913	48.2970823	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318423	Huspeka J.	1993	2	3	16.208573	48.3179309	50
30	Euphorbio verrucosae-Caricetum typicum	AT	318477	Schardinger M.	2005		A14	15.9634152	48.1118076	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318498	Schardinger M.	2005		A20	15.9799493	48.1146266	51
30	Euphorbio verrucosae-Caricetum typicum	AT	318499	Schardinger M.	2005		A03	16.0217642	48.1250715	51
30	Euphorbio verrucosae-Caricetum typicum	AT	335014	Willner W. et al.	2013	4	43	16.1435555	48.2889166	51
30	Euphorbio verrucosae-Caricetum typicum	AT	335051	Willner W. et al.	2013	4	24	16.1738195	48.0757822	51
30	Euphorbio verrucosae-Caricetum typicum	AT	335055	Willner W. et al.	2013	4	44	15.8868117	48.0506446	46
30	Euphorbio verrucosae-Caricetum typicum	AT	335124	Willner W. et al.	2013	4	45	15.9999372	48.187106	55
30	Euphorbio verrucosae-Caricetum typicum	AT	335174	Willner W. et al.	2013	4	3	16.2788885	48.33877	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335175	M. Staudinger	ined.			16.2788109	48.3390499	46
30	Euphorbio verrucosae-Caricetum typicum	AT	335179	Willner W. et al.	2013	4	47	16.1804383	48.2971195	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335180	Willner W. et al.	2013	4	48	16.2906015	48.2917289	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335230	Willner W. et al.	2013	4	51	16.0684434	48.0423749	46
30	Euphorbio verrucosae-Caricetum typicum	AT	335235	Willner W. et al.	2013	5	4	16.0617067	48.0434911	54
30	Euphorbio verrucosae-Caricetum typicum	AT	335314	V. Grass	ined.		21	16.1407675	48.2891412	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335315	V. Grass	ined.		22	16.1408273	48.2894255	51
30	Euphorbio verrucosae-Caricetum typicum	AT	335316	V. Grass	ined.		23	16.1422213	48.2908083	51
30	Euphorbio verrucosae-Caricetum typicum	AT	335317	V. Grass	ined.		24	16.1426451	48.2913774	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335319	V. Grass	ined.		26	16.14265	48.2900782	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335320	V. Grass	ined.		27	16.1421631	48.290118	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335321	V. Grass	ined.		28	16.1424057	48.2903214	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335323	V. Grass	ined.		30	16.1461726	48.2917081	50
30	Euphorbio verrucosae-Caricetum typicum	AT	335328	V. Grass	ined.		37	16.1619913	48.2970823	50
30	Euphorbio verrucosae-C									

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI	L6
30	Euphorbio verrucosae-Caricetum typicum	AT	340618	Urban B.	1992		14	15.985	47.976	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	340619	Urban B.	1992		92	15.985	47.976	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	340620	Urban B.	1992		12	15.985	47.976	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	340624	Urban B.	1992		16	15.985	47.976	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	340625	Urban B.	1992		85	15.985	47.976	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	340628	Urban B.	1992		87	15.985	47.976	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	340630	Urban B.	1992		69	15.985	47.976	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	341078	M. Staudinger	ined.			16.14562	48.1004	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	343167	M. Staudinger	ined.			16.03038333	48.08486667	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	343170	M. Staudinger	ined.			16.03101667	48.10765	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	343172	M. Staudinger	ined.			16.02253333	48.10266667	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	343195	M. Staudinger	ined.			15.99711667	48.10016667	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	343238	M. Staudinger	ined.			16.20603333	48.28731667	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	343347	M. Staudinger	ined.			16.1755	48.10496667	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	343348	M. Staudinger	ined.			16.17581667	48.1049	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	343349	M. Staudinger	ined.			16.17843333	48.10518333	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	343350	M. Staudinger	ined.			16.18065	48.1055	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	344624	Steinbuch E.	1995	28	2	15.37149	47.24392	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365237	Umweltbundesamt	ined.			15.79658612	48.09359512	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365243	Umweltbundesamt	ined.			15.97654343	48.0208086	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365246	Umweltbundesamt	ined.			15.99625706	48.07386624	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	365251	Umweltbundesamt	ined.			16.12819693	48.27410983	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	365253	Umweltbundesamt	ined.			16.12819693	48.27410983	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365263	Umweltbundesamt	ined.			16.12313074	48.12100876	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	365324	Umweltbundesamt	ined.			14.1451504	47.14088728	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365327	Umweltbundesamt	ined.			14.21672806	47.21023445	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365407	Umweltbundesamt	ined.			16.17571157	47.66686773	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	365488	Umweltbundesamt	ined.			14.36319764	46.90694905	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365515	Umweltbundesamt	ined.			14.73773964	47.12560939	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365517	Umweltbundesamt	ined.			14.73773964	47.12560939	45	
30	Euphorbio verrucosae-Caricetum typicum	AT	365518	Umweltbundesamt	ined.			14.85565981	47.39991351	46	
30	Euphorbio verrucosae-Caricetum typicum	AT	365532	Umweltbundesamt	ined.			14.97286375	47.37658433	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365534	Umweltbundesamt	ined.			14.98090037	47.32211208	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365535	Umweltbundesamt	ined.			14.98090037	47.32211208	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	365543	Umweltbundesamt	ined.			15.31401943	47.46867656	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365545	Umweltbundesamt	ined.			15.57155162	48.00601808	46	
30	Euphorbio verrucosae-Caricetum typicum	AT	365546	Umweltbundesamt	ined.			15.57155162	48.00601808	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365547	Umweltbundesamt	ined.			15.57155162	48.00601808	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365549	Umweltbundesamt	ined.			15.64434348	48.05641731	46	
30	Euphorbio verrucosae-Caricetum typicum	AT	365552	Umweltbundesamt	ined.			15.66627794	47.64938053	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365553	Umweltbundesamt	ined.			15.66627794	47.64938053	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365609	Umweltbundesamt	ined.			13.74510953	47.63298695	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365610	Umweltbundesamt	ined.			13.74510953	47.63298695	58	
30	Euphorbio verrucosae-Caricetum typicum	AT	365611	Umweltbundesamt	ined.			13.79758148	47.6221662	58	
30	Euphorbio verrucosae-Caricetum typicum	AT	365614	Umweltbundesamt	ined.			14.03308617	47.5686702	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365618	Umweltbundesamt	ined.			14.12200998	47.68249222	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365619	Umweltbundesamt	ined.			14.12235024	47.5202773	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365620	Umweltbundesamt	ined.			14.12235024	47.5202773	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365621	Umweltbundesamt	ined.			14.17883512	47.72539054	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365623	Umweltbundesamt	ined.			14.17883512	47.72539054	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365625	Umweltbundesamt	ined.			14.32214688	47.6837746	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365627	Umweltbundesamt	ined.			14.41999038	47.5807218	45	
30	Euphorbio verrucosae-Caricetum typicum	AT	365632	Umweltbundesamt	ined.			14.70150626	47.89346117	45	
30	Euphorbio verrucosae-Caricetum typicum	AT	365634	Umweltbundesamt	ined.			14.70150626	47.89346117	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365636	Umweltbundesamt	ined.			14.77478199	47.67395211	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365642	Umweltbundesamt	ined.			14.86075526	47.87750414	47	
30	Euphorbio verrucosae-Caricetum typicum	AT	365643	Umweltbundesamt	ined.			14.88181752	47.95769851	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365644	Umweltbundesamt	ined.			14.88399827	47.8404124	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	365645	Umweltbundesamt	ined.			14.88399827	47.8404124	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365646	Umweltbundesamt	ined.			14.88399827	47.8404124	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365653	Umweltbundesamt	ined.			15.20600931	47.97886691	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365654	Umweltbundesamt	ined.			15.20600931	47.97886691	49	
30	Euphorbio verrucosae-Caricetum typicum	AT	365663	Umweltbundesamt	ined.			15.40255746	48.05954759	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365664	Umweltbundesamt	ined.			15.40255746	48.05954759	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365675	Umweltbundesamt	ined.			15.73875099	47.22154322	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365676	Umweltbundesamt	ined.			15.73875099	47.22154322	46	
30	Euphorbio verrucosae-Caricetum typicum	AT	365685	Umweltbundesamt	ined.			14.13212458	47.80826005	54	
30	Euphorbio verrucosae-Caricetum typicum	AT	365686	Umweltbundesamt	ined.			14.13212458	47.80826005	58	
30	Euphorbio verrucosae-Caricetum typicum	AT	365687	Umweltbundesamt	ined.			14.23506444	47.92146904	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365688	Umweltbundesamt	ined.			14.23506444	47.92146904	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365689	Umweltbundesamt	ined.			14.23506444	47.92146904	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365690	Umweltbundesamt	ined.			14.23506444	47.92146904	45	
30	Euphorbio verrucosae-Caricetum typicum	AT	365693	Umweltbundesamt	ined.			14.28621986	47.8924505	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365694	Umweltbundesamt	ined.			14.28621986	47.8924505	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	365695	Umweltbundesamt	ined.			15.37128792	47.7634922	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365710	Umweltbundesamt	ined.			15.73337312	47.77217489	47	
30	Euphorbio verrucosae-Caricetum typicum	AT	365711	Umweltbundesamt	ined.			15.73337312	47.77217489	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365712	Umweltbundesamt	ined.			15.73337312	47.77217489	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	365718	Umweltbundesamt	ined.			16.12819693	48.27410983	46	
30	Euphorbio verrucosae-Caricetum typicum	AT	365724	Umweltbundesamt	ined.			16.23466387	47.49202873	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	413563	Oberforster M.	1986	p120	5	14.55487	47.93676	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413565	Oberforster M.	1986	p120	18	14.55675	47.93502	51	
30	Euphorbio verrucosae-Caricetum typicum	AT	413567	Oberforster M.	1986	p120	32	14.55663	47.92921	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	413568	Oberforster M.	1986	p120	37	14.53406	47.90438	50	
30	Euphorbio verrucosae-Caricetum typicum	AT	413570	Oberforster M.	1986	p120	53	14.5458	47.93755	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	413571	Oberforster M.	1986	p120	55	14.54631	47.94186	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	413572	Oberforster M.	1986	p120	58	14.54526	47.90665	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	413573	Oberforster M.	1986	p120	70	14.5461	47.93734	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413574	Oberforster M.	1986	p120	119	14.54699	47.93802	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413575	Oberforster M.	1986	p120	154	14.55055	47.92756	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413576	Oberforster M.	1986	p120	162	14.54149	47.93552	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413577	Oberforster M.	1986	p120	22	14.54699	47.93802	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413578	Oberforster M.	1986	p120	34	14.53764	47.90951	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413579	Oberforster M.	1986	p120	76	14.52363	47.93692	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413580	Oberforster M.	1986	p120	111	14.54048	47.93662	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413581	Oberforster M.	1986	p120	130	14.55741	47.93372	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413582	Oberforster M.	1986	p120	134	14.55139	47.92612	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413583	Oberforster M.	1986	p120	161	14.55458	47.93384	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413584	Oberforster M.	1986	p120	209	14.54446	47.94096	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413585	Oberforster M.	1986	p120	190	14.54211	47.93538	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	413589	Oberforster M.	1986	p120	41	14.53119	47.89943	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	431014	F. Essl	ined.			14.27789	47.88681	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	431015	F. Essl	ined.			14.27009	47.88622	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	431016	F. Essl	ined.			14.29663	47.88814	55	
30	Euphorbio verrucosae-Caricetum typicum	AT	431118	M. Staudinger	ined.			0	0	52	
30	Euphorbio verrucosae-Caricetum typicum	AT	431123	M. Staudinger	ined.			0	0	53	
30	Euphorbio verrucosae-Caricetum typicum	AT	431131	M. Staudinger	ined.			0	0		

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
30	Euphorbio verrucosae-Caricetum typicum	AT	433521	M. Staudinger	ined.			15.569535	47.816242	53
30	Euphorbio verrucosae-Caricetum typicum	AT	433554	M. Staudinger	ined.			15.453268	47.768741	50
30	Euphorbio verrucosae-Caricetum typicum	AT	433587	M. Staudinger	ined.			15.42135	47.76898	53
30	Euphorbio verrucosae-Caricetum typicum	AT	434201	Pfeffer I.	1981			15.94542	47.8161	51
30	Euphorbio verrucosae-Caricetum typicum	AT	434202	Pfeffer I.	1981			15.98041	47.84594	50
30	Euphorbio verrucosae-Caricetum typicum	AT	434203	Pfeffer I.	1981			15.94441	47.80909	51
30	Euphorbio verrucosae-Caricetum typicum	AT	434204	Pfeffer I.	1981			15.9846	47.84856	52
30	Euphorbio verrucosae-Caricetum typicum	AT	434205	Pfeffer I.	1981			15.98798	47.84156	52
30	Euphorbio verrucosae-Caricetum typicum	AT	434206	Pfeffer I.	1981			15.96539	47.87184	50
30	Euphorbio verrucosae-Caricetum typicum	AT	434207	Pfeffer I.	1981			15.97518	47.82956	52
30	Euphorbio verrucosae-Caricetum typicum	AT	434208	Pfeffer I.	1981			15.98655	47.83575	52
30	Euphorbio verrucosae-Caricetum typicum	AT	434209	Pfeffer I.	1981			15.9874	47.83863	52
30	Euphorbio verrucosae-Caricetum typicum	AT	434212	Pfeffer I.	1981			15.47575	47.90444	53
30	Euphorbio verrucosae-Caricetum typicum	AT	445253	Bassler G., Lichtenegger A. & Karrer G.	2000	1	1	14.06144	47.53591	53
30	Euphorbio verrucosae-Caricetum typicum	AT	445255	Bassler G., Lichtenegger A. & Karrer G.	2000	1	3	14.15024	47.51948	53
30	Euphorbio verrucosae-Caricetum typicum	AT	445260	Bassler G., Lichtenegger A. & Karrer G.	2000	1	8	14.10204	47.5376	50
30	Euphorbio verrucosae-Caricetum typicum	AT	445262	Bassler G., Lichtenegger A. & Karrer G.	2000	1	10	14.16094	47.55874	53
30	Euphorbio verrucosae-Caricetum typicum	AT	445268	Bassler G., Lichtenegger A. & Karrer G.	2000	1	16	14.04993	47.55838	53
30	Euphorbio verrucosae-Caricetum typicum	AT	445269	Bassler G., Lichtenegger A. & Karrer G.	2000	1	17	14.15169	47.52316	54
30	Euphorbio verrucosae-Caricetum typicum	AT	445281	Bassler G., Lichtenegger A. & Karrer G.	2000	1	29	14.10204	47.5376	54
30	Euphorbio verrucosae-Caricetum typicum	AT	445905	M. Staudinger	ined.			15.906912	48.007432	53
30	Euphorbio verrucosae-Caricetum typicum	AT	446073	M. Staudinger	ined.			14.195589	47.875605	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365615	Umweltbundesamt	ined.			14.12200998	47.68249222	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365617	Umweltbundesamt	ined.			14.12200998	47.68249222	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365622	Umweltbundesamt	ined.			14.17883512	47.72539054	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365633	Umweltbundesamt	ined.			14.70150626	47.89346117	47
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365637	Umweltbundesamt	ined.			14.77478199	47.67395211	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365647	Umweltbundesamt	ined.			14.98819501	47.67343404	53
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365648	Umweltbundesamt	ined.			14.98819501	47.67343404	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365649	Umweltbundesamt	ined.			15.06079264	47.86845231	53
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365650	Umweltbundesamt	ined.			15.06079264	47.86845231	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365651	Umweltbundesamt	ined.			15.06079264	47.86845231	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	365698	Umweltbundesamt	ined.			15.62943632	47.92189093	45
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	413586	Oberforster M.	1986	p120	136	14.54586	47.93344	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	413587	Oberforster M.	1986	p120	164	14.55255	47.92117	47
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	413588	Oberforster M.	1986	p120	165	14.5454	47.8986	53
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	413590	Oberforster M.	1986	p120	166	14.55897	47.93569	55
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425238	Essl F.	1998		4	14.35502	47.83975	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425239	Essl F.	1998		5	14.35547	47.83952	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425240	Essl F.	1998		6	14.35314	47.83908	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425244	Essl F.	1998		10	14.35553	47.8382	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425245	Essl F.	1998		11	14.35553	47.83632	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425247	Essl F.	1998		13	14.35617	47.83838	41
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425252	Essl F.	1998		18	14.34974	47.84116	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425253	Essl F.	1998		19	14.35061	47.84109	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425255	Essl F.	1998		21	14.34762	47.84252	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425260	Essl F.	1998		26	14.35868	47.82702	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425266	Essl F.	1998		32	14.36242	47.83563	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425268	Essl F.	1998		34	14.35494	47.83892	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425275	Essl F.	1998		41	14.35784	47.84036	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425278	Essl F.	1998		44	14.35967	47.83997	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425279	Essl F.	1998		45	14.36058	47.83881	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425280	Essl F.	1998		46	14.35983	47.83924	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425282	Essl F.	1998		48	14.35739	47.84521	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425283	Essl F.	1998		49	14.36254	47.84697	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425285	Essl F.	1998		51	14.36652	47.84826	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425289	Essl F.	1998		55	14.35451	47.84042	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425290	Essl F.	1998		56	14.35627	47.83924	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425291	Essl F.	1998		57	14.35637	47.83896	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425294	Essl F.	1998		60	14.34591	47.84973	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425296	Essl F.	1998		62	14.34252	47.85034	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425305	Essl F.	1998		71	14.35315	47.83842	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425306	Essl F.	1998		72	14.35255	47.83763	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425307	Essl F.	1998		73	14.35161	47.83743	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425318	Essl F.	1998		84	14.36865	47.84353	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425319	Essl F.	1998		85	14.36902	47.84367	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425321	Essl F.	1998		87	14.36926	47.8425	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425322	Essl F.	1998		88	14.37007	47.84212	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425335	Essl F.	1998		101	14.36516	47.83908	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425340	Essl F.	1998		106	14.35171	47.84347	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425341	Essl F.	1998		107	14.35214	47.84442	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425342	Essl F.	1998		108	14.352	47.84111	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425343	Essl F.	1998		109	14.35054	47.83911	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425344	Essl F.	1998		110	14.34806	47.83806	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425345	Essl F.	1998		111	14.34973	47.83962	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425346	Essl F.	1998		112	14.34875	47.84246	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425355	Essl F.	1998		121	14.35596	47.83608	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425356	Essl F.	1998		122	14.35505	47.82824	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425361	Essl F.	1998		127	14.36501	47.8223	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425363	Essl F.	1998		129	14.35558	47.8438	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425364	Essl F.	1998		130	14.36408	47.8461	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425365	Essl F.	1998		131	14.3646	47.84538	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425366	Essl F.	1998		132	14.36377	47.84462	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425367	Essl F.	1998		133	14.35353	47.84934	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425370	Essl F.	1998		136	14.35701	47.84751	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425371	Essl F.	1998		137	14.35522	47.8471	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425376	Essl F.	1998		142	14.35107	47.85073	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425379	Essl F.	1998		145	14.3566	47.84195	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425380	Essl F.	1998		146	14.35843	47.83622	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425387	Essl F.	1998		158	14.35938	47.82487	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425401	Essl F.	1998		167	14.35791	47.82713	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425410	Essl F.	1998		176	14.35159	47.84749	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425421	Essl F.	1998		187	14.34877	47.8408	58
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425440	Essl F.	1998		206	0	0	61
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425454	Essl F.	1998		223	14.35427	47.82785	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425457	Essl F.	1998		226	14.38095	47.83627	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425460	Essl F.	1998		229	14.35043	47.8513	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425463	Essl F.	1998		233	14.35376	47.85257	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425465	Essl F.	1998		235	14.35927	47.85256	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425468	Essl F.	1998		238	14.3637	47.85032	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425472	Essl F.	1998		242	14.37582	47.84436	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425473	Essl F.	1998		244	14.37022	47.84889	63
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	425481	Essl F.	1998		251	14.3614	47.82585	62
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431005	F. Essl	ined.			14.20902	47.874	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431019	F. Essl	ined.			14.30139	47.86717	57
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431343	Essl F.	2004	5		14.38014	47.94242	48
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431344	Essl F.	2004	5		14.38014	47.94242	35
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431345	Essl F.	2004	5		14.73553	47.90294	64
31	Euphorbio verrucosae-Caricetum seslerietosum	AT	431346	Essl F.	2004	5		14.74958	47.90678	62
31	Euphorbio verrucosae-C									

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
32	Carex alba-Bromus erectus comm.	AT	432759	V. Grass	ined.			14.41462	47.95736	47
32	Carex alba-Bromus erectus comm.	AT	432760	V. Grass	ined.			14.41462	47.95736	47
32	Carex alba-Bromus erectus comm.	AT	432761	V. Grass	ined.			14.41462	47.95736	47
32	Carex alba-Bromus erectus comm.	AT	432762	V. Grass	ined.			14.41462	47.95736	47
32	Carex alba-Bromus erectus comm.	AT	432763	V. Grass	ined.			14.41462	47.95736	49
32	Carex alba-Bromus erectus comm.	AT	432764	V. Grass	ined.			14.41462	47.95736	49
32	Carex alba-Bromus erectus comm.	AT	432765	V. Grass	ined.			14.41462	47.95736	53
32	Carex alba-Bromus erectus comm.	AT	432766	V. Grass	ined.			14.41462	47.95736	49
32	Carex alba-Bromus erectus comm.	AT	432767	V. Grass	ined.			14.41462	47.95736	49
33	Mesobrometum	AT	365289	Umweltbundesamt	ined.			13.11999206	47.64361428	54
33	Mesobrometum	AT	365291	Umweltbundesamt	ined.			13.11267576	47.30155692	53
33	Mesobrometum	AT	365292	Umweltbundesamt	ined.			13.11267576	47.30155692	51
33	Mesobrometum	AT	365293	Umweltbundesamt	ined.			13.15760673	47.82265548	53
33	Mesobrometum	AT	365295	Umweltbundesamt	ined.			13.17703716	47.70501583	53
33	Mesobrometum	AT	365296	Umweltbundesamt	ined.			13.17703716	47.70501583	54
33	Mesobrometum	AT	365299	Umweltbundesamt	ined.			13.19917612	47.63231863	53
33	Mesobrometum	AT	365301	Umweltbundesamt	ined.			13.20185871	47.46110623	50
33	Mesobrometum	AT	365302	Umweltbundesamt	ined.			13.20185871	47.46110623	50
33	Mesobrometum	AT	365303	Umweltbundesamt	ined.			13.20185871	47.46110623	46
33	Mesobrometum	AT	365304	Umweltbundesamt	ined.			13.25313806	47.43256447	46
33	Mesobrometum	AT	365307	Umweltbundesamt	ined.			13.34299541	47.59198391	53
33	Mesobrometum	AT	365308	Umweltbundesamt	ined.			13.40679406	47.75214538	50
33	Mesobrometum	AT	365311	Umweltbundesamt	ined.			13.40679406	47.75214538	46
33	Mesobrometum	AT	365450	Umweltbundesamt	ined.			12.19946291	47.59398181	45
33	Mesobrometum	AT	365451	Umweltbundesamt	ined.			12.19946291	47.59398181	48
33	Mesobrometum	AT	365584	Umweltbundesamt	ined.			9.650348	47.22851509	53
33	Mesobrometum	AT	365585	Umweltbundesamt	ined.			9.650348	47.22851509	51
33	Mesobrometum	AT	365586	Umweltbundesamt	ined.			9.650348	47.22851509	53
33	Mesobrometum	AT	365587	Umweltbundesamt	ined.			9.650348	47.22851509	50
33	Mesobrometum	AT	365588	Umweltbundesamt	ined.			9.99341538	47.13005543	53
33	Mesobrometum	AT	365589	Umweltbundesamt	ined.			9.99341538	47.13005543	54
33	Mesobrometum	AT	365602	Umweltbundesamt	ined.			10.64258149	47.44321475	46
33	Mesobrometum	AT	416424	Smettan H.W.	1981	113	265	12.22283	47.6533	51
33	Mesobrometum	AT	432367	Laudert D.	1992		55	13.098	47.774	55
33	Mesobrometum	AT	432368	Laudert D.	1992		56	13.098	47.774	55
33	Mesobrometum	AT	432369	Laudert D.	1992		57	13.098	47.774	55
33	Mesobrometum	AT	432371	Laudert D.	1992		59	13.098	47.774	55
33	Mesobrometum	AT	432380	Laudert D.	1992		68	13.098	47.774	55
33	Mesobrometum	AT	432384	Laudert D.	1992		72	13.098	47.774	55
33	Mesobrometum	AT	432408	Laudert D.	1992		97	13.098	47.774	55
33	Mesobrometum	AT	432830	M. Staudinger	ined.			9.74458	47.20387	53
33	Mesobrometum	AT	433020	M. Staudinger	ined.			13.568718	47.851357	55
33	Mesobrometum	AT	434497	V. Grass	ined.			13.41489	47.7533	53
33	Mesobrometum	AT	434501	V. Grass	ined.			13.42467	47.7453	51
33	Mesobrometum	AT	434504	V. Grass	ined.			13.42775	47.74654	53
33	Mesobrometum	AT	434505	V. Grass	ined.			13.43204	47.74574	53
33	Mesobrometum	AT	445875	M. Staudinger	ined.			13.522344	47.926488	58
34	Gentiano verna-Brometum	AT	365282	Umweltbundesamt	ined.			13.10153628	47.77922839	54
34	Gentiano verna-Brometum	AT	365283	Umweltbundesamt	ined.			13.10153628	47.77922839	58
34	Gentiano verna-Brometum	AT	365284	Umweltbundesamt	ined.			13.10153628	47.77922839	53
34	Gentiano verna-Brometum	AT	365285	Umweltbundesamt	ined.			13.10153628	47.77922839	53
34	Gentiano verna-Brometum	AT	365290	Umweltbundesamt	ined.			13.11267576	47.30155692	50
34	Gentiano verna-Brometum	AT	365294	Umweltbundesamt	ined.			13.16483766	47.72338184	54
34	Gentiano verna-Brometum	AT	365298	Umweltbundesamt	ined.			13.19917612	47.63231863	53
34	Gentiano verna-Brometum	AT	365300	Umweltbundesamt	ined.			13.19917612	47.63231863	54
34	Gentiano verna-Brometum	AT	365305	Umweltbundesamt	ined.			13.34299541	47.59198391	53
34	Gentiano verna-Brometum	AT	365306	Umweltbundesamt	ined.			13.34299541	47.59198391	53
34	Gentiano verna-Brometum	AT	365309	Umweltbundesamt	ined.			13.40679406	47.75214538	51
34	Gentiano verna-Brometum	AT	365310	Umweltbundesamt	ined.			13.40679406	47.75214538	51
34	Gentiano verna-Brometum	AT	365449	Umweltbundesamt	ined.			12.19946291	47.59398181	53
34	Gentiano verna-Brometum	AT	365452	Umweltbundesamt	ined.			12.19946291	47.59398181	53
34	Gentiano verna-Brometum	AT	365590	Umweltbundesamt	ined.			9.99341538	47.13005543	53
34	Gentiano verna-Brometum	AT	365591	Umweltbundesamt	ined.			10.05927324	47.13904169	54
34	Gentiano verna-Brometum	AT	365592	Umweltbundesamt	ined.			10.32343101	47.25560173	53
34	Gentiano verna-Brometum	AT	365594	Umweltbundesamt	ined.			10.53547786	47.33577871	48
34	Gentiano verna-Brometum	AT	365595	Umweltbundesamt	ined.			10.53547786	47.33577871	53
34	Gentiano verna-Brometum	AT	365600	Umweltbundesamt	ined.			10.61746492	47.56036119	53
34	Gentiano verna-Brometum	AT	416422	Smettan H.W.	1981	113	564	12.22136	47.59544	57
34	Gentiano verna-Brometum	AT	416423	Smettan H.W.	1981	113	102	12.20161	47.59202	57
34	Gentiano verna-Brometum	AT	416425	Smettan H.W.	1981	113	81	12.15386	47.59165	53
34	Gentiano verna-Brometum	AT	416426	Smettan H.W.	1981	113	104	12.18993	47.58621	53
34	Gentiano verna-Brometum	AT	416427	Smettan H.W.	1981	114	563	12.22136	47.59544	58
34	Gentiano verna-Brometum	AT	416428	Smettan H.W.	1981	114	566	12.26019	47.59221	58
34	Gentiano verna-Brometum	AT	416430	Smettan H.W.	1981	114	509	12.25378	47.6037	58
34	Gentiano verna-Brometum	AT	420834	Grabherr G.	1984	p423		0	0	58
34	Gentiano verna-Brometum	AT	420839	Grabherr G.	1984	p490		0	0	51
34	Gentiano verna-Brometum	AT	420873	Grabherr G.	1984	p671		9.98162	47.02554	51
34	Gentiano verna-Brometum	AT	425204	Weber J.	1981	p.351	333	11.01836	47.31555	57
34	Gentiano verna-Brometum	AT	425205	Weber J.	1981	p.351	334	11.01836	47.31555	57
34	Gentiano verna-Brometum	AT	425206	Weber J.	1981	p.351	335	11.01836	47.31555	57
34	Gentiano verna-Brometum	AT	425207	Weber J.	1981	p.351	336	11.01836	47.31555	57
34	Gentiano verna-Brometum	AT	425211	Weber J.	1981	p.351	340	11.03723	47.3377	57
34	Gentiano verna-Brometum	AT	431851	Machold C.	1996	5	1	9.72605	47.20077	57
34	Gentiano verna-Brometum	AT	431852	Machold C.	1996	5	2	9.72605	47.20077	57
34	Gentiano verna-Brometum	AT	431853	Machold C.	1996	5	3	9.72288	47.22406	57
34	Gentiano verna-Brometum	AT	431854	Machold C.	1996	5	4	9.68172	47.21682	57
34	Gentiano verna-Brometum	AT	431855	Machold C.	1996	5	5	9.67533	47.23757	57
34	Gentiano verna-Brometum	AT	431856	Machold C.	1996	5	6	9.70902	47.21728	57
34	Gentiano verna-Brometum	AT	431857	Machold C.	1996	5	7	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431858	Machold C.	1996	5	8	9.67533	47.23757	57
34	Gentiano verna-Brometum	AT	431859	Machold C.	1996	5	9	9.67533	47.23757	57
34	Gentiano verna-Brometum	AT	431860	Machold C.	1996	5	10	9.77257	47.2088	57
34	Gentiano verna-Brometum	AT	431861	Machold C.	1996	5	11	9.67533	47.23757	57
34	Gentiano verna-Brometum	AT	431862	Machold C.	1996	5	12	9.72605	47.20077	57
34	Gentiano verna-Brometum	AT	431863	Machold C.	1996	5	13	9.77257	47.2088	57
34	Gentiano verna-Brometum	AT	431864	Machold C.	1996	5	14	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431865	Machold C.	1996	5	15	9.67533	47.23757	57
34	Gentiano verna-Brometum	AT	431866	Machold C.	1996	5	16	9.8007	47.19761	57
34	Gentiano verna-Brometum	AT	431867	Machold C.	1996	5	17	9.7588	47.20639	57
34	Gentiano verna-Brometum	AT	431868	Machold C.	1996	5	18	9.72288	47.22406	57
34	Gentiano verna-Brometum	AT	431869	Machold C.	1996	5	19	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431870	Machold C.	1996	5	20	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431871	Machold C.	1996	5	21	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431872	Machold C.	1996	5	22	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431873	Machold C.	1996	5	23	9.98921	47.12362	57
34	Gentiano verna-Brometum	AT	431874	Machold C.	1996	5	24	9.77257	47.2088	57
34	Gentiano verna-Brometum	AT	431875	Machold C.	1996	5	25	9.8007	47.19761	57
34	Gentiano verna-Brometum	AT	431876	Machold C.	1996	5	26	9.77257	47.2088	57
34	Gentiano verna-Brometum	AT	431877	Machold C.	1996	5	27	9.73982	47.21866	57
34	Gentiano verna-Brometum	AT	431878	Machold C.	1996	5	28	9.95122	47.13554	50
34	Gentiano verna-Brometum	AT	431879	Machold C.	1996	5	29	9.8007	47.19761	51
34	Gentiano verna-Brometum	AT	431880	Machold C.	1996	5	30	9.65352	47.24835	57
34	Gentiano verna-Brometum	AT	431881	Machold C.	1996	5	31	9.70902	47.21728	50
34	Gentiano verna-Brometum	AT	431882	Machold C.	1996	5	32	9.72605	47.20077	53
34	Gentiano verna-Brometum	AT	431883	Machold C.	1996	9	33	9.98921	47.12362	57
34	Gentiano verna-Brometum	AT	431884	Machold C.	1996	9	34	9.89083	47.15605	57
34	Gentiano verna-Brometum	AT	431885	Machold C.	1996	9	35	9.77093	47.12886	57
34	Gentiano verna-Brometum	AT	431886	Machold C.	1996	9	36	9.68171	47.23328	57
34	Gentiano verna-Brometum	AT	431887	Machold C.	1996	9	37	9.77257	47.2088	57
34	Gentiano verna-Brometum	AT	431888	M						

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34	Gentiano vernaе-Brometum	AT	431927	Machold C.	1996		79	9.72605	47.20077	57
34	Gentiano vernaе-Brometum	AT	431928	Machold C.	1996	9	80	9.8007	47.19761	57
34	Gentiano vernaе-Brometum	AT	431929	Machold C.	1996	9	81	9.75943	47.15877	57
34	Gentiano vernaе-Brometum	AT	431932	Machold C.	1996	9	84	9.79935	47.20603	57
34	Gentiano vernaе-Brometum	AT	431933	Machold C.	1996	9	85	9.80402	47.13465	57
34	Gentiano vernaе-Brometum	AT	431934	Machold C.	1996	9	86	9.62829	47.20287	57
34	Gentiano vernaе-Brometum	AT	431935	Machold C.	1996	7	87	9.88906	47.19567	57
34	Gentiano vernaе-Brometum	AT	431937	Machold C.	1996	7	89	9.80402	47.13465	57
34	Gentiano vernaе-Brometum	AT	431938	Machold C.	1996	7	90	9.79935	47.20603	57
34	Gentiano vernaе-Brometum	AT	431939	Machold C.	1996	7	91	9.62829	47.20287	57
34	Gentiano vernaе-Brometum	AT	431941	Machold C.	1996	7	93	9.66375	47.18638	57
34	Gentiano vernaе-Brometum	AT	431942	Machold C.	1996	7	94	9.80402	47.13465	57
34	Gentiano vernaе-Brometum	AT	431943	Machold C.	1996	7	95	9.80402	47.13465	57
34	Gentiano vernaе-Brometum	AT	431944	Machold C.	1996	7	96	9.64814	47.19267	57
34	Gentiano vernaе-Brometum	AT	431945	Machold C.	1996	7	97	9.62829	47.20287	57
34	Gentiano vernaе-Brometum	AT	431946	Machold C.	1996	7	98	9.62052	47.19686	57
34	Gentiano vernaе-Brometum	AT	431947	Machold C.	1996	7	99	9.62052	47.19686	57
34	Gentiano vernaе-Brometum	AT	431951	Machold C.	1996	7	103	9.98277	47.13377	57
34	Gentiano vernaе-Brometum	AT	431953	Machold C.	1996	7	105	9.73285	47.22608	57
34	Gentiano vernaе-Brometum	AT	431954	Machold C.	1996	7	106	9.73285	47.22608	57
34	Gentiano vernaе-Brometum	AT	431956	Machold C.	1996	7	108	9.73285	47.22608	57
34	Gentiano vernaе-Brometum	AT	431957	Machold C.	1996	7	109	9.73285	47.22608	57
34	Gentiano vernaе-Brometum	AT	431958	Machold C.	1996	7	110	9.8007	47.19761	57
34	Gentiano vernaе-Brometum	AT	431959	Machold C.	1996	7	111	9.98277	47.13377	57
34	Gentiano vernaе-Brometum	AT	431960	Machold C.	1996	7	112	9.87183	47.20392	57
34	Gentiano vernaе-Brometum	AT	432160	Loacker I., Grabher M. & Aschauer M.	2006			9.97166	47.25233	52
34	Gentiano vernaе-Brometum	AT	432163	Loacker I., Grabher M. & Aschauer M.	2006			9.97146	47.25133	53
34	Gentiano vernaе-Brometum	AT	432165	Loacker I., Grabher M. & Aschauer M.	2006			9.97289	47.25066	55
34	Gentiano vernaе-Brometum	AT	432167	Loacker I., Grabher M. & Aschauer M.	2006			9.96882	47.25022	53
34	Gentiano vernaе-Brometum	AT	432170	Loacker I., Grabher M. & Aschauer M.	2006			9.96985	47.24958	55
34	Gentiano vernaе-Brometum	AT	432362	Laudert D.	1992		50	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432363	Laudert D.	1992		51	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432364	Laudert D.	1992		52	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432365	Laudert D.	1992		53	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432366	Laudert D.	1992		54	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432370	Laudert D.	1992		58	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432372	Laudert D.	1992		60	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432373	Laudert D.	1992		61	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432374	Laudert D.	1992		62	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432375	Laudert D.	1992		63	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432376	Laudert D.	1992		64	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432377	Laudert D.	1992		65	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432378	Laudert D.	1992		66	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432379	Laudert D.	1992		67	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432381	Laudert D.	1992		69	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432382	Laudert D.	1992		70	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432383	Laudert D.	1992		71	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432385	Laudert D.	1992		73	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432387	Laudert D.	1992		75	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432388	Laudert D.	1992		76	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432389	Laudert D.	1992		77	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432390	Laudert D.	1992		78	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432391	Laudert D.	1992		79	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432392	Laudert D.	1992		80	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432393	Laudert D.	1992		81	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432394	Laudert D.	1992		82	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432395	Laudert D.	1992		83	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432396	Laudert D.	1992		84	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432397	Laudert D.	1992		85	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432398	Laudert D.	1992		86	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432399	Laudert D.	1992		87	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432400	Laudert D.	1992		89	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432401	Laudert D.	1992		90	13.098	47.774	54
34	Gentiano vernaе-Brometum	AT	432402	Laudert D.	1992		91	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432403	Laudert D.	1992		92	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432404	Laudert D.	1992		93	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432405	Laudert D.	1992		94	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432406	Laudert D.	1992		95	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432407	Laudert D.	1992		96	13.098	47.774	53
34	Gentiano vernaе-Brometum	AT	432409	Laudert D.	1992		98	13.098	47.774	55
34	Gentiano vernaе-Brometum	AT	432410	Laudert D.	1992		99	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432411	Laudert D.	1992		100	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432412	Laudert D.	1992		101	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432413	Laudert D.	1992		102	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432414	Laudert D.	1992		103	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432415	Laudert D.	1992		104	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432416	Laudert D.	1992		105	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432417	Laudert D.	1992		106	13.098	47.774	58
34	Gentiano vernaе-Brometum	AT	432809	M. Staudinger	ined.			9.60905	47.20899	57
34	Gentiano vernaе-Brometum	AT	432813	M. Staudinger	ined.			9.62402	47.20731	57
34	Gentiano vernaе-Brometum	AT	432816	M. Staudinger	ined.			9.66402	47.18431	57
34	Gentiano vernaе-Brometum	AT	432818	M. Staudinger	ined.			9.66544	47.18868	57
34	Gentiano vernaе-Brometum	AT	432820	M. Staudinger	ined.			9.74046	47.20329	51
34	Gentiano vernaе-Brometum	AT	432823	M. Staudinger	ined.			9.91765	47.15231	51
34	Gentiano vernaе-Brometum	AT	432828	M. Staudinger	ined.			9.75235	47.20416	50
34	Gentiano vernaе-Brometum	AT	434287	Metzler H. W.	2010	6	1	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434288	Metzler H. W.	2010	6	2	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434289	Metzler H. W.	2010	6	3	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434290	Metzler H. W.	2010	6	4	9.91741	47.1519	51
34	Gentiano vernaе-Brometum	AT	434291	Metzler H. W.	2010	6	5	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434292	Metzler H. W.	2010	6	6	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434293	Metzler H. W.	2010	6	7	9.91741	47.1519	57
34	Gentiano vernaе-Brometum	AT	434294	Metzler H. W.	2010	6	8	9.91741	47.1519	57
34	Gentiano vernaе-Brometum	AT	434295	Metzler H. W.	2010	6	9	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434296	Metzler H. W.	2010	6	10	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434297	Metzler H. W.	2010	6	11	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434298	Metzler H. W.	2010	6	12	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434299	Metzler H. W.	2010	6	13	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434300	Metzler H. W.	2010	6	14	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434301	Metzler H. W.	2010	6	15	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434302	Metzler H. W.	2010	6	16	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434303	Metzler H. W.	2010	6	17	9.91741	47.1519	55
34	Gentiano vernaе-Brometum	AT	434304	Metzler H. W.	2010	6	18	9.91741	47.1519	57
34	Gentiano vernaе-Brometum	AT	434498	V. Grass	ined.			13.41082	47.75307	62
34	Gentiano vernaе-Brometum	AT	434503	V. Grass	ined.			13.42976	47.74443	58
34	Gentiano vernaе-Brometum	AT	434561	M. Staudinger	ined.			13.412411	47.765711	45
34	Gentiano vernaе-Brometum	AT	444003	M. Staudinger	ined.			13.289438	47.601054	53
34	Gentiano vernaе-Brometum	AT	444068	M. Staudinger	ined.			13.256407	47.619464	53
34	Gentiano vernaе-Brometum	AT	444074	M. Staudinger	ined.			13.291006	47.601653	53
34	Gentiano vernaе-Brometum	AT	444486	Medicus U.	2010		32	13.106389	47.739167	61
34	Gentiano vernaе-Brometum	AT	444487	Medicus U.	2010		33	13.101111	47.738056	53
34	Gentiano vernaе-Brometum	AT	444488	Medicus U.	2010		34	13.123889	47.791389	58
34	Gentiano vernaе-Brometum	AT	444489	Medicus U.	2010		35	13.177222	47.679167	58
34	Gentiano vernaе-Brometum	AT	444491	Medicus U.	2010		37	13.153333	47.720833	58
34	Gentiano vernaе-Brometum	AT	444493	Medicus U.	2010		39	13.1	47.79	58
34	Gentiano vernaе-Brometum	AT	444501	Medicus U.	2010		47	13.103889	47.791944	53
34	Gentiano vernaе-Brometum	AT	444502	Medicus U.	2010		48	13.110833	47.775556	58
34	Gentiano vernaе-Brometum	AT	444503	Medicus U.	2010		49	13.108889	47.773889	58
34	Gentiano vernaе-Brometum	AT	444507	Medicus U.	2010		53	13.099722	47.790278	58

column	syntaxon	Country	TurbovegNr	AUTHOR	YEAR	Table	Nr rel.	deg lon	deg lat	TWI L6
36	Carlino-Caricetum sempervirentis	DE	427150	Lutz J. L. & Paul H.	1947	7	22	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427151	Lutz J. L. & Paul H.	1947	7	30	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427152	Lutz J. L. & Paul H.	1947	7	29	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427153	Lutz J. L. & Paul H.	1947	7	21	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427154	Lutz J. L. & Paul H.	1947	7	24	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427155	Lutz J. L. & Paul H.	1947	7	31	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427156	Lutz J. L. & Paul H.	1947	7	25	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427157	Lutz J. L. & Paul H.	1947	7	6	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427158	Lutz J. L. & Paul H.	1947	7	7	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427159	Lutz J. L. & Paul H.	1947	7	8	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427160	Lutz J. L. & Paul H.	1947	7	11	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427161	Lutz J. L. & Paul H.	1947	7	13	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427162	Lutz J. L. & Paul H.	1947	7	14	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427163	Lutz J. L. & Paul H.	1947	7	17	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427164	Lutz J. L. & Paul H.	1947	7	19	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427165	Lutz J. L. & Paul H.	1947	7	20	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427166	Lutz J. L. & Paul H.	1947	7	23	11.2646	47.4869	59
36	Carlino-Caricetum sempervirentis	DE	427167	Lutz J. L. & Paul H.	1947	7	26	11.2646	47.4869	48
36	Carlino-Caricetum sempervirentis	AT	431896	Machold C.	1996	9	46	9.66375	47.18638	57
36	Carlino-Caricetum sempervirentis	AT	431930	Machold C.	1996	9	82	9.88906	47.19567	57
36	Carlino-Caricetum sempervirentis	AT	431931	Machold C.	1996	9	83	9.98277	47.13377	57
36	Carlino-Caricetum sempervirentis	AT	431936	Machold C.	1996	7	88	9.69012	47.23859	57
36	Carlino-Caricetum sempervirentis	AT	431940	Machold C.	1996	7	92	9.79935	47.20603	57
36	Carlino-Caricetum sempervirentis	AT	431948	Machold C.	1996	7	100	9.62052	47.19686	57
36	Carlino-Caricetum sempervirentis	AT	431949	Machold C.	1996	7	101	9.87183	47.20392	57
36	Carlino-Caricetum sempervirentis	AT	431950	Machold C.	1996	7	102	9.87183	47.20392	57
36	Carlino-Caricetum sempervirentis	AT	431952	Machold C.	1996	7	104	9.87183	47.20392	57
36	Carlino-Caricetum sempervirentis	AT	431955	Machold C.	1996	7	107	9.8007	47.19761	57
36	Carlino-Caricetum sempervirentis	AT	432146	Loacker I., Grabher M. & Aschauer M.	2006			9.97121	47.25119	57
36	Carlino-Caricetum sempervirentis	AT	432159	Loacker I., Grabher M. & Aschauer M.	2006			9.97264	47.25258	57
36	Carlino-Caricetum sempervirentis	AT	432164	Loacker I., Grabher M. & Aschauer M.	2006			9.9692	47.25154	57
36	Carlino-Caricetum sempervirentis	AT	434305	Metzler H. W.	2010	6	19	9.91741	47.1519	57
36	Carlino-Caricetum sempervirentis	AT	434306	Metzler H. W.	2010	6	20	9.91741	47.1519	57
36	Carlino-Caricetum sempervirentis	AT	434307	Metzler H. W.	2010	6	21	9.91741	47.1519	57
36	Carlino-Caricetum sempervirentis	AT	444879	Kaiser R. et Eberle T.				10.838392	47.28921	57
36	Carlino-Caricetum sempervirentis	AT	444949	Kaiser R. et Eberle T.				13.489021	47.213364	60